PLANNING AND ZONING MEETING

August 5, 2020

AGENDA

1. Review Minutes 1-2

2. Appointments

    a. Auto Zone Master Site Plan Approval.....3-79
    b. Annual Commission Training

3. Other Business

4. Adjourn

MINUTES OF A PLANNING AND ZONING MEETING

May 6, 2020

The meeting was called to order at 5:30 p.m. by Chairperson Steven Timothy.

A roll call was taken which showed Board Members Steven Timothy, Lynn Snow, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher present.

Others present included, Building Director Dean Johnson, City Recorder Carolyn Wilcken, Acting City Manager Ryan Clayburn, City Councilman Don Busenbark, Annette Miller, Bart Miller, Mark Bardsley, Barry Thompson, Kirby Wolfinjer, and Nash McKee.

MINUTES

A motion was made by Commission Member Lynn Snow to approve the minutes of the regular meeting of April 1, 2020, after revision. Motion seconded by Ren Bagley. Those voting Aye are Steven Timothy, Lynn Snow, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher. Motion carried unanimously.

PUBLIC HEARING TO REZONE SUMMER HILLS SUBDIVISION R-1-6 TO PO-R LOTS 101-119

Bart and Annette Miller have requested a rezone of Summer Hills Subdivision lots 101 through 119 from R-1-6 to PO-R. They would like to combine the residential lots to allow for future businesses and the new zoning would require 7,000 square feet per lot. Chairman Steven Timothy stated that the public hearing was now open for public comment. Barry Thompson said he lives in that area and wanted to know what the Miller's were planning to do with the lots. Mrs. Miller stated that they would like to see professional offices like dental office, eye doctor, assisted living, insurance sales, etc. A motion was made by Commission Member Lynn Snow to recommend to City Council to allow this zoning request. Motion seconded by Commission Member Cody Fisher. Those voting Aye are Steven Timothy, Lynn Snow, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher. Motion carried unanimously.

MINOR SUBDIVISION – ROOSEVELT CITY LOT SPLIT (for library)

Mayor JR Bird came before the Commission to present the revised plat map splitting property off from Central Park owned by Roosevelt City, to allow for construction by Duchesne County of a new library on the West side of the park and the swimming pool. A motion was made by Commission Member Chris Thomsen to approve this application as presented. Motion seconded by Commission Member RuthAnn Green. Those voting Aye are Steven Timothy, Lynn Snow, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher. Motion carried unanimously.

FINAL PLAT APPROVAL – FAITH BAPTIST CHURCH

Members reviewed the final plat for improvements to the Faith Baptist Church. Lynn Snow had to leave the meeting at this point. A motion was made by Commission Member Chris Thomsen to have Building Inspector Dean Johnson approve the final plat. Motion seconded by Commission Member Ren Bagley. Those voting Aye are Steven Timothy, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher. Motion carried unanimously.

REVIEW CITY CODE 16-6-130 RE. EASEMENT STANDARDS

A motion was made by Commission Member Chris Thomsen to update our easement standards to require a 10 foot PUE along the front of all future subdivisions lots and have City Staff prepare the code change. Motion seconded by Commission Member Cody Fisher. Those voting Aye are Steven Timothy, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher. Motion carried unanimously.

LOT LINE ADJUSTMENT – KIRBY WOLFINJER

Kirby Wolfinjer has requested approval to split property owned by Sheela Mitchell in order to adjust for landscaping of his residence that has been shown to be on the Mitchell property. The understanding was that adjustment needed to be 17', but the plat showed an additional 15" added by the surveyor on the plat map. A motion was made by Commission Member Cris Squire to table this matter until a new plat is prepared removing the additional 15" back to the original 17". This matter will be on the next meeting agenda. There was no second to this motion. A motion was then made by Commission Member Chris Thomsen to approve the lot line adjustment based on the condition that a new plat be prepared removing the additional 15" and allowing Commission Chairperson Steven Timothy the sign the new plat so it didn't have to come back to the Commission. Motion seconded by Lynn Snow and he divulged that he is brother-in-law to Sheila Mitchell.

CHANGE IN P & Z PROCEDURE

Chairman Steven Timothy expressed a desire to attend a Duchesne County Planning and Zoning meeting to see if they have protocols in place that would work well for Roosevelt City.

Motion to adjourn the meeting was made by RuthAnn Green. Motion seconded by Chris Thomsen. Those voting Aye are Steven Timothy, Lynn Snow, RuthAnn Green, Cris Squire, Ren Bagley, Chris Thomsen, and Cody Fisher. Motion carried unanimously.

Meeting adjourned at 7:00 p.m.

ROOSEVELT CITY CORPORATION
255 South State Street
Roosevelt, UT 84066
(435) 722-5001
FAX: 435-722-5000

All applications must be submitted 10 days prior to a Planning & Zoning meeting
Plans and plats must be approved no later than Friday prior to the scheduled meeting

PLANNING AND ZONING APPLICATION

TYPE OF REQUEST AND FEES: ***(Check one)***

- ☐ Lot line adjustment/Property boundary adjustment – 75.00
- ☒ Master site plan – 150.00 Over 1 acre 75.00 per acre
- ☐ Conditional Use Permit Fee: 200.00 **is *required before Home Occupation Permit can be applied for and approved***
- ☐ Zoning map amendment (rezone) – 250.00
- ☐ Application for reimbursement of public improvements - 100.00
- ☐ Hearing office appeal - 150.00
- ☐ Hearing Officer Variance request – 150.00
- ☐ Infrastructure reimbursement agreement – 100.00
- ☐ Manufactured home park – 250.00 plus per home pad – 10.00
- ☐ Ordinance/general plan amendment - 200.00
- ☐ Planned Residential Unit Development (PRUD) – 250.00
  Plus per dwelling unit – 10.00
- ☐ Subdivision preliminary plat – 250.00
- ☐ Subdivision, minor – 250.00
- ☐ Subdivision vacation/amendment – 200.00
- ☐ Time Extension – 100.00
- ☐ Subdivision final plat – 150.00
  Plus per lot – 25.00
  Signed plat must be sent electronically to the Building & Zoning Director, djohnson@rooseveltcity.com no later than Friday prior to the meeting
- ☐ Petition to Vacate Public Right of Way – 200.00

DETAILS OF REQUEST *(include how property is affected and attach maps and drawings) Attach additional pages as needed.*

AutoZone is under contract to purchase this parcel and redevelop it with a new retail auto parts store including parking lot and landscaping. New construction will meet required zoning and building ordinances. Coordination has been done with the owner of the property to the east (China Star) with regard to shared parking and traffic flow.

INFORMATION:

Date application submitted: 7/16/2020 Contact #: 435-757-2004

Owner or Representatives Name: Colby Anderson (AutoZone Rep) Email: colbya@awaeng.com

Mailing Address: 2010 North Redwood Rd. City: Salt Lake City State: UT Zip: 84116

Project Name: AutoZone

Tax I.D. Number on property: 00-0002-2354 Zoning of Subject Property: Commercial

Property Location: 740 East 200 North - Roosevelt

Nature of Request: New construction of retail auto parts store and site improvements.

Current Land Use: ☒ Vacant ☐ Residential ☐ Commercial ☐ Professional

PROPERTY OWNER(S) NAME: Gayatri, LLC
(If not the same as applicant) (Current Title Holder as shown on County Records)

Mailing Address: 9976 S. Birdie Way City: South Jordan State: UT Zip: 84009

Contact #: 801-631-2132 Tom Patel Email: pateltom@hotmail.com

SIGNATURE: T Patel Dated: 07/17/2020

OFFICE USE ONLY:
Zoning Director: Dean E Johnson Planning Director: Dean E Johnson Fee Paid: 150.00 Date Paid: 7-21-2020
Dated: 7/21/2020 Hearing Date: 8/5/2020

Comments:

P:\ZONING

Legal Descripion

LOCATED WITHIN THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 15, TOWNSHIP 2O SOUTH, RANGE 1 WEST, UINTAH SPECIAL BASE AND MERIDIAN, SAID PARCEL BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT AN ALUMINUM CAP, MARKING THE SOUTHWEST CORNER OF SAID SECTION 15, TOWNSHIP 2 SOUTH, RANGE 11 WEST, USBM; THENCE N 88°44'05" E, 2644.74 FEET TO THE SOUTH QUARTER CORNER OF SAID SECTION 15 (MONUMENT NOT FOUND); THENCE N 01°15'55" W, 38.00 FEET; THENCE N 88°44'05" E, 463.00 FEET TO THE SOUTHWESTERLY CORNER OF PARCEL AND THE POINT OF BEGINNING;

THENCE N 01°15'55" W, 220.00 FEET TO AN ALUMINUM CAP;
THENCE N 88°44'05" E, 225.00 FEET TO AN ALUMINUM CAP;
THENCE S 01°15'55" E, 83.00 FEET TO AN ALUMINUM CAP;
THENCE S 88°44'05" W, 70.00 FEET TO AN NAIL IN ASPHALT;
THENCE S 01°15'55" E, 137.00 FEET TO THE SOUTHEASTERLY CORNER OF PARCEL;
THENCE S 88°44'05" W, 155.00 FEET TO THE POINT OF BEGINNING.

SUBJECT TO AN EASEMENT FOR INGRESS, EGRESS AND SHARED PARKING ACROSS AND UPON THE FOLLOWING DESCRIBED PARCEL OF LAND/PARKING LOT:

BEGINNING AT SAID SOUTH QUARTER CORNER THENCE THENCE N 01°15'55" W, 38.00 FEET; THENCE N 88°44'05" E, 548.00 FEET TO THE POINT OF BEGINNING;

THENCE N 01°15'55" W, 137.00 FEET TO AN ALUMINUM CAP;
THENCE N 88°44'05" E, 70.00 FEET TO AN ALUMINUM CAP;
THENCE S 01°15'55" E, 137.00 FEET TO AN ALUMINUM CAP;
THENCE S 88°44'05" W, 70.00 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 39,910 SQUARE FEET OR 0.92 ACRES MORE OR LESS

Abbreviations

BCR	Begin Curb Return	PVC	Polyvinyl Chloride
BOL	Bollard	PVI	Point of Vertical Intersection
BRW	Finish Grade – Bottom of Retaining Wall	RCP	Reinforced Concrete Pipe
CATV	Cable Television Box	RD	Roof Drain
CB	Catch Basin	SB	Signal Box
CMP	Corrugated Metal Box	SD	Storm Drain
COB	Cleanout Box	SDMH	Storm Drain Manhole
COTG	Cleanout to Grade	SMH	Sewer Manhole
EA	Edge of Asphalt	SP	Signal Pole
EB	Electrical Box	SS	Sanitary Sewer
EC	End of Curve	SVZ	Sight Visibility Zone
ECR	End Curb Return	SW	Secondary Water
GB	Grade Break	TA	Top of Asphalt
GM	Gas Meter	TB	Telephone Box
HB	Hose Bib	TBC	Top Back of Curb
HP	High Point	TG	Top of Grade
I	Irrigation Line	TMH	Telephone Manhole
ICB	Irrigation Control Box	TP	Top of Concrete
Lip	Lip of Gutter	TRW	Finish Grade – Top of Retaining Wall
LP	Light Pole	TW	Top of Walk
MH	Manhole	VC	Vertical Curve
Mon	Monument	VPC	Vertical Point of Curve
PC	Point of Curvature	VPT	Vertical Point of Tangency
PCC	Point of Compound Curvature	WL	Waterline
PM	Power Meter	WP	Working Point
PP	Power Pole	WV	Water Valve
PT	Point of Tangency		

Owner:

AutoZone Parts, Inc.
123 S. Front Street, 3rd Floor
Memphis, Tennessee 38103
(901) 495-8717

INDEX OF DRAWINGS

AutoZone

AutoZone Store Development
Site Plan Submission
for:
AutoZone Store No. 3600
740 East 200 North
Roosevelt, Utah

Know what's below. Call 811 before you dig.
BLUE STAKES OF UTAH
UTILITY NOTIFICATION CENTER, INC.
www.bluestakes.org
1-800-662-4111

Legend

Proposed Curb & Gutter		Existing Improvements	
Proposed Open Face C & G		Existing Asphalt	
Proposed Asphalt		Existing Concrete	
Proposed Concrete		Existing Inlet Box	
Proposed Truncated Domes		Existing Catch Basin	
Proposed Inlet Box		Existing Manhole	
Proposed Catch Basin		Existing Fire Hydrant	FH
Proposed Manhole		Existing Water Valve	WV
Proposed Transformer	T	Existing Overhead Power Line	OHP
Proposed Meter Box		Existing Water	W
Proposed Water Meter		Existing Secondary Water	SW
Proposed Combo Box	M	Existing Sewer	S
Proposed Fire Hydrant		Existing Storm Drain	SD
Proposed Water Valve		Existing Gas	G
Proposed Water Line	W	Existing Power	P
Proposed Sanitary Sewer	S	Existing Telephone	T
Proposed Storm Drain		Existing Fence	X
Proposed Conduit Line	C	Flowline	
Proposed Power Line	P	Centerline	
Proposed Gas Line	G	Existing Contour	78
Proposed Secondary Water Line	SW	Existing Spot	78.00TA
Proposed Roof Drain	RD	Existing Light Pole	
Proposed Fence	X	Existing Street Light	
Ridge line	R	Existing Building	
Grade Break	GB	Existing Telephone Box	TB
Proposed Contour	78	Existing Power Meter	PM
Direction of Drainage		Existing Electrical Box	EB
Proposed Spot	78.00TA	Existing Electrical Cabinet	EOAB
ADA Accessible Route		Existing Gas Meter	GM
Property Line		Existing Water Meter	WM
Sawcut Line		Existing Irrig. Control Box	ICB
Proposed Light Pole		Existing Bollard	BOL
Proposed Street Light		Existing Hose Bib	HB
Proposed Building		Working Point	
Existing Power Pole		Existing Deciduous Tree	
Existing Power Pole w/ Guy		Existing Coniferous Tree	
Existing Utility Marker		Detail Number	XX
Existing Post		Sheet Number	XX

Benchmark

Brass Cap Monument from the Southwest Corner of
Section 15, T2S, R1W, USB&M
Assigned Elevation = 5115.25 Feet
Observed 14 Oct, 2017

Site Plans Prepared by:
Applicant / Developer / Lessee:

AutoZone Parts, Inc.
c/o: MITCH BRAMLITT
123 S. Front Street, 3rd Floor
Memphis, Tennessee 38103
(901) 495-8714

Architect:

Lew Ellis
123 S. Front Street, 3rd Floor
Memphis, Tennessee 38103
(901) 495-8707

Civil Engineering Plans Prepared by:
Civil Engineer:

Anderson Wahlen & Associates
c/o: COLBY ANDERSON
2010 N. Redwood Road
Salt Lake City, UT 84116
(801) 521-8529

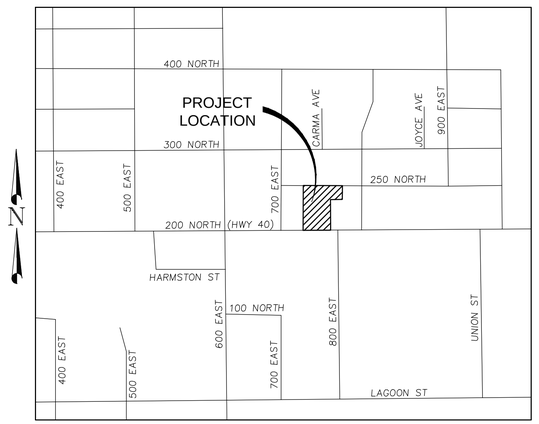
Plan Submittal Date:

July 15, 2020

RESPONSIBLE DISTRICTS OR AGENCIES

A. CITY: ROOSEVELT CITY
B. WATER UTILITY COMPANY: ROOSEVELT CITY
C. SEWER: ROOSEVELT CITY
D. STORM DRAIN/GROUNDWATER: ROOSEVELT CITY
E. ELECTRICAL: MOON LAKE ELECTRIC ASSOCIATION
F. NATURAL GAS: DOMINION ENERGY
G. TELEPHONE COMPANY: STRATA NETWORKS
H. STATE ROAD: 200 NORTH (SR-40)
I. CITY ENGINEER: DEAN JOHNSON

NOTE: ALL CONSTRUCTION TO CONFORM TO APWA AND CITY STANDARDS AND SPECIFICATIONS.



VICINITY MAP (NOT TO SCALE)

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-108CV

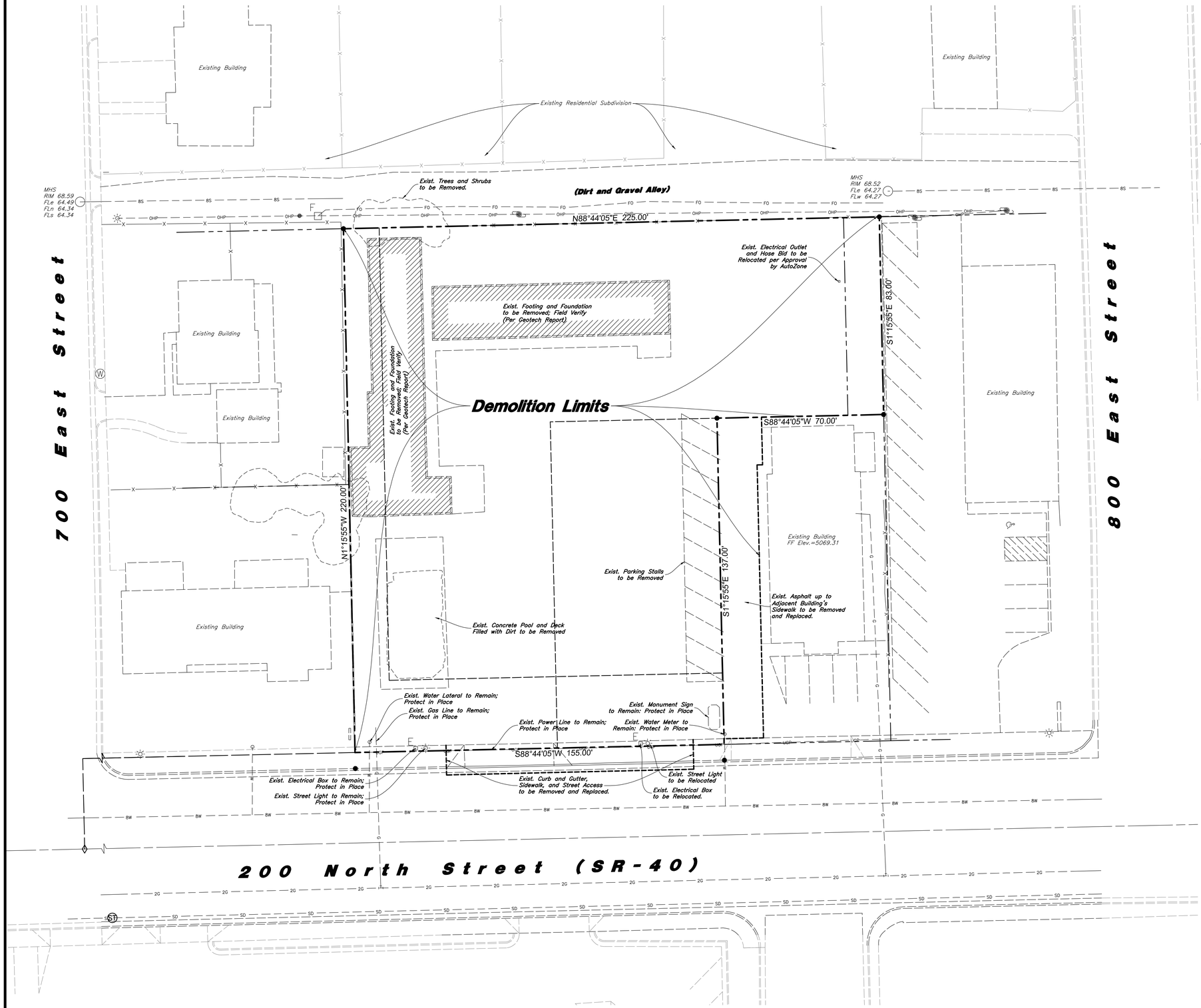
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWengineering.net

Cover Sheet

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
CV



Scale: 1" = 20'

20' 0 20' 40'

General Demolition Notes:

1. Demolition and site clearing for this contract are to include all areas shown within demolition limits or by note.
2. Refer to site improvement plans for more details on limits of removal.
3. All curbs, gutters, walks, slabs, walls, fences, flatwork, asphalt, waterlines and meters, gas lines, sewer lines, light poles, buried cables, storm drain piping and structures to be cleared from site unless otherwise shown.
4. All utilities, sewer, water, gas, telephone and electrical services to be disconnected and capped according to city, county and utility company requirements, unless otherwise shown.
5. Excavated areas to be backfilled with clean granular material compacted to 95% of maximum lab density as determined by ASTM D 1557-78. (Test results to be given to owner) Excavated areas should be backfilled per the geotechnical report prepared for the project.
6. Clear and grub trees, shrubs, and vegetation within construction limits, disposal to be off-site except where noted otherwise.
7. DO NOT interrupt any services or disrupt the operation of any businesses shown outside the demolition limits.
8. Remove debris, rubbish, and other materials resulting from the demolition and site clearing operations from the site and dispose of in a legal manner.
9. The location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied upon as being exact or complete. Contractor shall contact authorities having jurisdiction for field locations. Contractor shall be responsible for protection of in place and relocated utilities during construction.
10. Stockpiles shall be graded to maintain slopes not greater than 3 horizontal to 1 vertical. Provide erosion control as needed to prevent sediment transport to adjacent drainage ways.
11. Contractor shall be responsible for disposal of all waste material. Disposal shall be at an approved site for such material. Burning onsite is not permitted.
12. Contractor shall verify with city any street removal, curb cuts, and any restoration required for utility line removal.
13. Install traffic warning devices as needed in accordance with local standards.
14. Contractor shall obtain all permits necessary for demolition from City, County, State or Federal Agencies as required.
15. If Contractor observes evidence of hazardous materials or contaminated soils he shall immediately contact the project engineer to provide notification and obtain direction before proceeding with disturbance of said materials or contaminated soil.

CAUTION :

The location and/or elevation of existing utilities as shown on these plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete.

Know what's below. Call 811 before you dig.
BLUE STAKES OF UTAH
UTILITY NOTIFICATION CENTER, INC.
www.bluestakes.org
1-800-662-4111

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-108DM

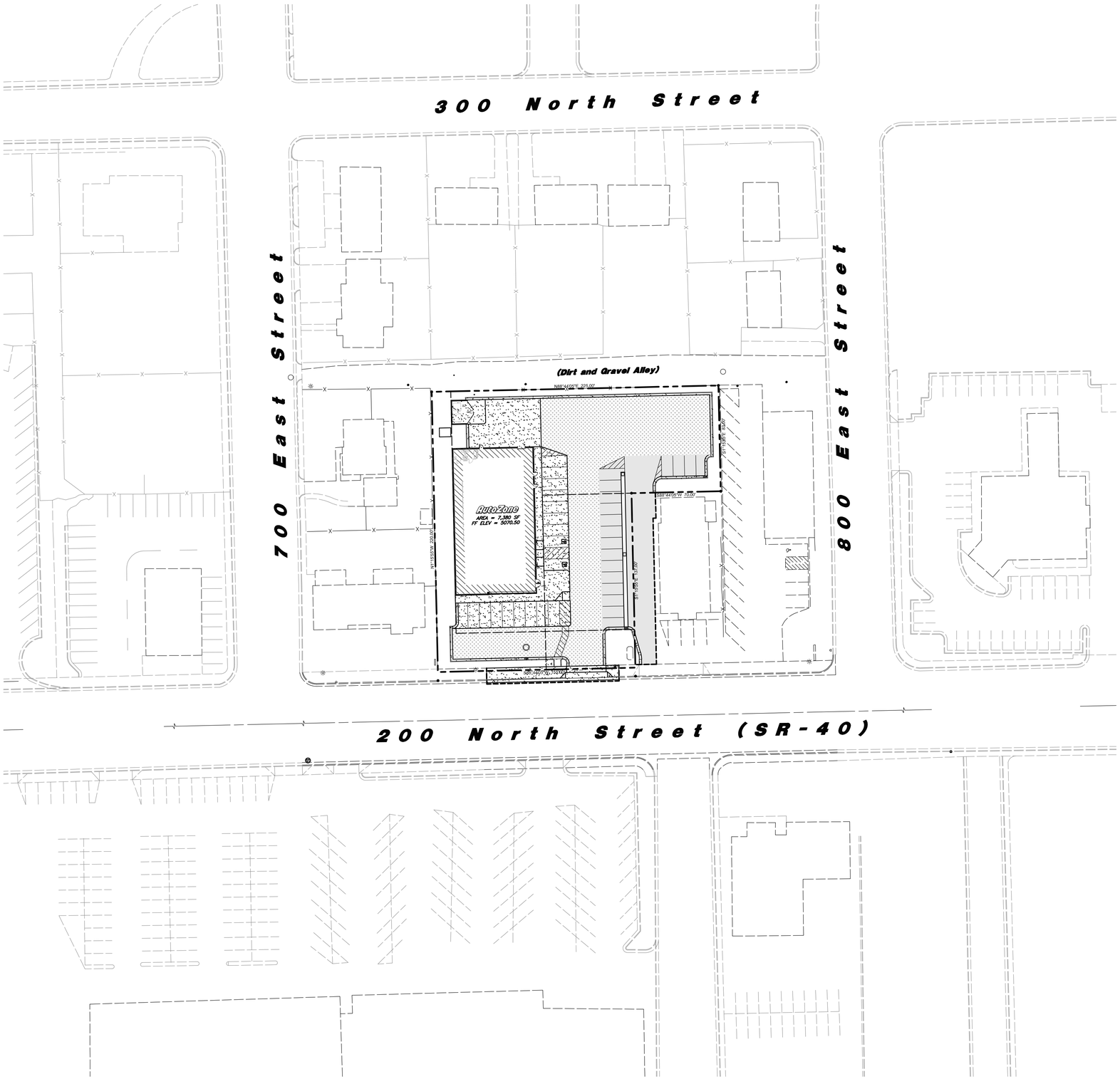
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWengineering.net

Demolition Plan

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C0.1



Scale: 1" = 40'

40' 0 40' 80'

Construction Survey Note:

The Construction Survey Layout for this project will be provided by Anderson Wahlen & Associates. The Layout Proposal and Professional Services Agreement will be provided to the General Contractor(s) for inclusion in base bids. The Survey Layout proposal has been broken out into Building Costs and Site Costs for use in the Site Work Bid Form.

Survey Control Note:

The contractor or surveyor shall be responsible for following the National Society of Professional Surveyors (NSPS) model standards for any surveying or construction layout to be completed using Anderson Wahlen and Associates ALTA Surveys or Anderson Wahlen and Associates construction improvement plans. Prior to proceeding with construction staking, the surveyor shall be responsible for verifying horizontal control from the survey monuments and for verifying any additional control points shown on an ALTA survey, improvement plan, or on electronic data provided by Anderson Wahlen and Associates. The surveyor shall also use the benchmarks as shown on the plan, and verify them against no less than three existing hard improvement elevations included on these plans or on electronic data provided by Anderson Wahlen and Associates. If any discrepancies are encountered, the surveyor shall immediately notify the engineer and resolve the discrepancies before proceeding with any construction staking.

PRIVATE ENGINEER'S NOTICE TO CONTRACTORS

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the contractor shall defend, indemnify, and hold the owner and the engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting for liability arising from the sole negligence of the owner or the engineer.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-1085P

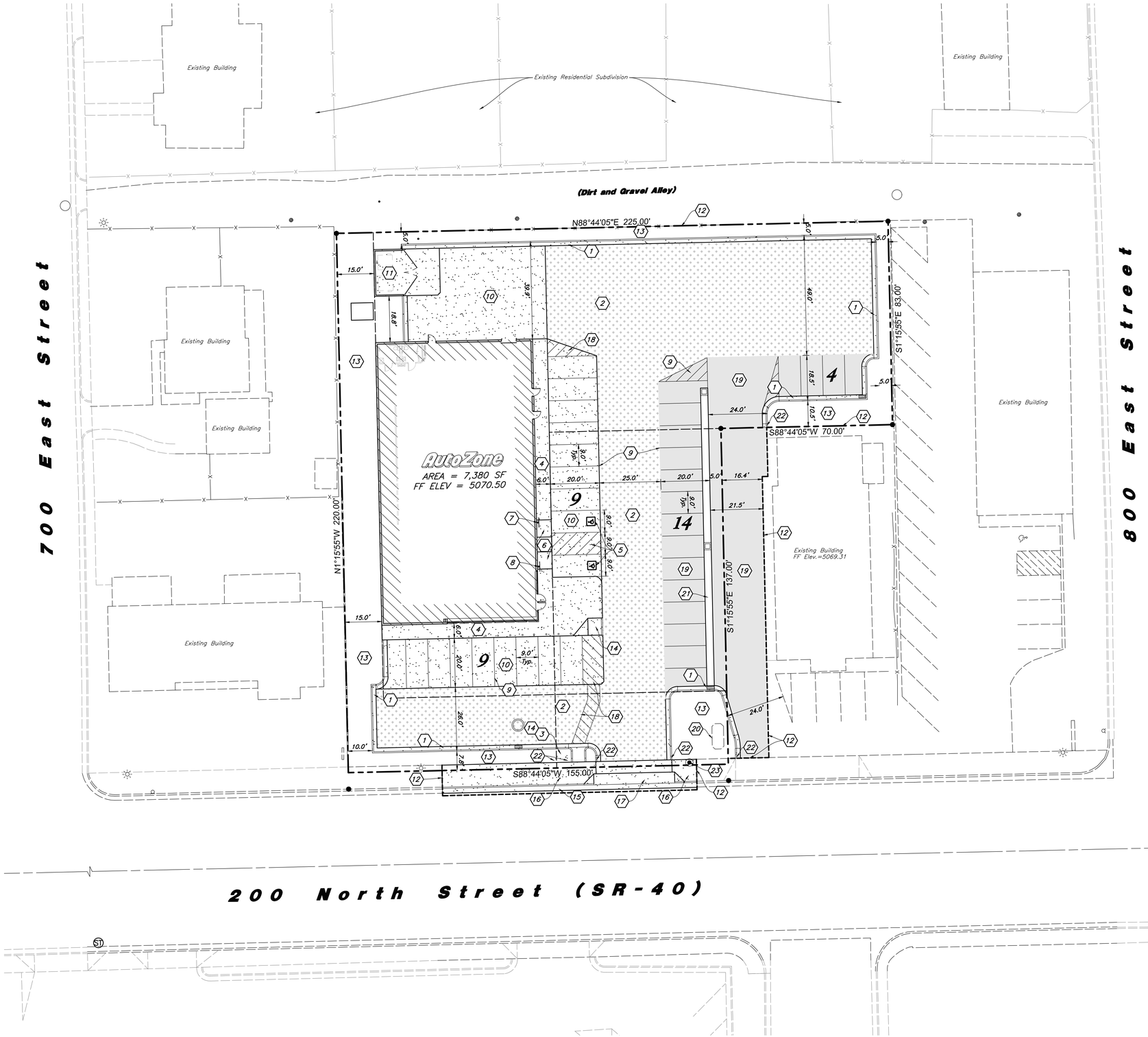
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWengineering.net

Overall Site Plan

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.0



Scale: 1" = 20'

20' 0 20' 40'

Site Data

Site Area = 39,910 s.f. (.92 ac.)
Landscape Area Provided = 6,515 s.f. (16%)
Impervious Area Provided = 26,015 s.f. (65%)
Building Area = 7,380 s.f (19%)
Parking Provided = 36 stalls (4.3/1,000)

Site Construction Notes

1. Const. 24" Curb & Gutter (1 C1.A)
2. Const. Heavy Duty Asphalt Paving (4 C1.A)
3. Const. Conc. Sidewalk (15 C1.A)
4. Const. Thickened Edge Sidewalk (12 C1.A)
5. Const. Accessible Striping per MUTCD & ICC/ANSI A117.1 (Latest Edition) (19 C1.A)
6. Const. Accessible Ramp per ICC/ANSI A117.1 (Latest Edition) (See Accessible Details and Notes) (14 C1.B)
7. Const. Accessible Sign per MUTCD & ICC/ANSI A117.1 (Latest Edition) (See Grading Details and Notes) (17 C1.A)
8. Const. Accessible VAN Sign per MUTCD & ICC/ANSI A117.1 (Latest Edition) (17 C1.A)
9. Const. 4" White Paint Stripe (Typ.) Contractor shall provide 15 mils min. thickness
10. Const. Conc. Paving (3 C1.A)
11. Dumpster Enclosure (See Details Sheet C1.A)
12. Conn. & Match Existing Improvements Sawcut; Provide Smooth Clean Edge if Needed
13. Const. Landscaping (Coordinate w/ Landscape Plan)
14. Const. Concrete Accessible Ramp to ROW (3 C1.B)
15. Const. 30" Curb and gutter per UDOT Details
16. Const. Sidewalk per UDOT Details
17. Const. Driveway per UDOT Details
18. Const. 4" White Paint Stripe 45° @ 24" O.C. Contractor shall provide 15 mils min. thickness
19. Const. Regular Duty Asphalt Paving (4 C1.A)
20. Exist. Monument Sign (To be Modified for AutoZone Specifications.)
21. Const. 3' Wide Concrete Waterway. (20 C1.A)
22. Const. 18" Tapered Curb Return
22. Relocated Light Pole Location, Per Utility Owners

General Site Notes:

1. All dimensions are to back of curb unless otherwise noted.
2. Fire lane markings and signs to be installed as directed by the Fire Marshal.
3. Aisle markings, directional arrows and stop bars will be painted at each driveway as shown on the plans.
4. Const. curb transition at all points where curb abuts sidewalk, see detail.
5. Contractor shall place asphalt paving in the direction of vehicle travel where possible.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name: Client
20-108SP

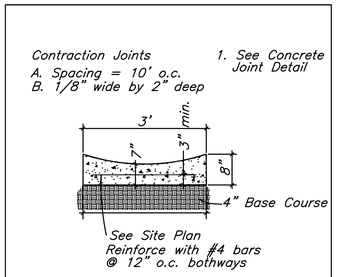
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-3529 – AWengineering.net

Site Plan

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

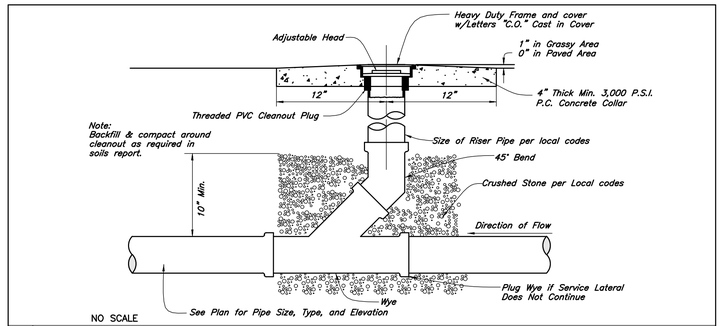
15 July, 2020

SHEET NO.
C1.1



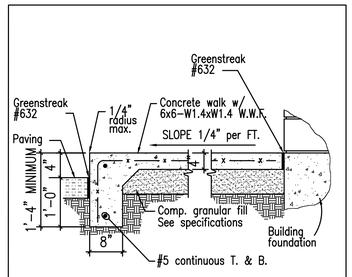
NO SCALE

20 TYPICAL WATERWAY DETAIL



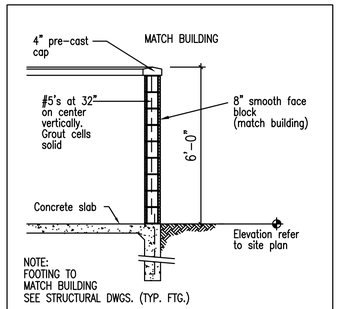
NO SCALE

16 CLEANOUT DETAIL



NO SCALE

12 TYPICAL WALK SECTION



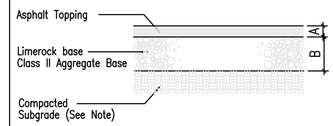
NO SCALE MDUMPSEC

8 DUMPSTER SECTION

DIMENSION & TYPE

Paving Area	A	B
Regular Duty (Stalls)	3"	8"
Heavy Duty (Drives)	4"	10"

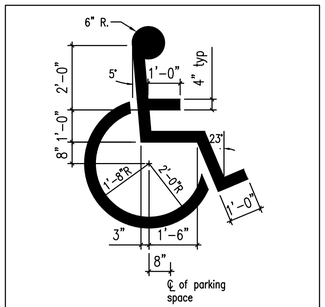
NOTE: Compacted subgrade and reinforcing should be as specified in soils report.



NOTE: See Geotechnical Report by Partner dated 06-02-2020 for more information.

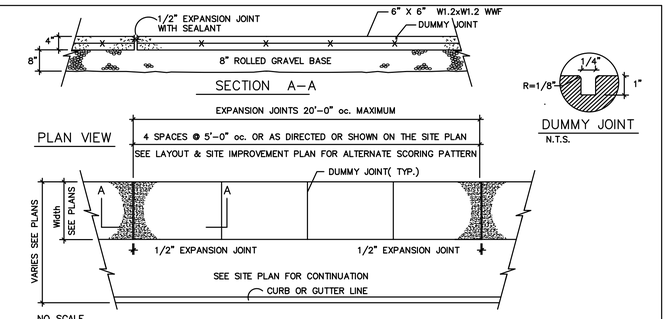
NO SCALE

4 ASPHALT PAVING SECTION



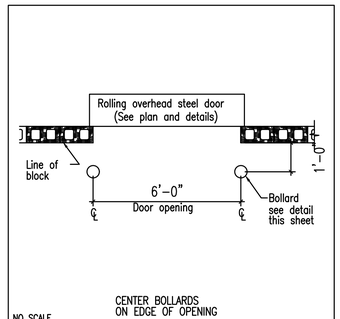
NO SCALE

19 INT'L BARRIER FREE SYMBOL



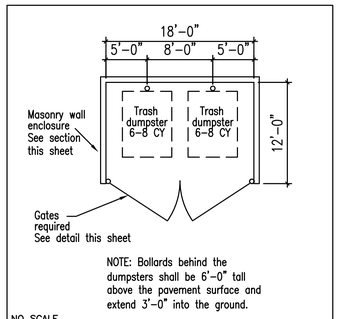
NO SCALE

15 CONCRETE SIDEWALK



NO SCALE

11 BOLLARD @ SERVICE DOOR



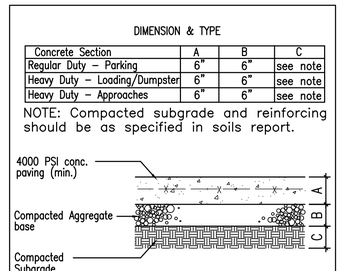
NO SCALE

7 DUMPSTER LAYOUT

DIMENSION & TYPE

Concrete Section	A	B	C
Regular Duty – Parking	6"	6"	see note
Heavy Duty – Loading/Dumpster	6"	6"	see note
Heavy Duty – Approaches	6"	6"	see note

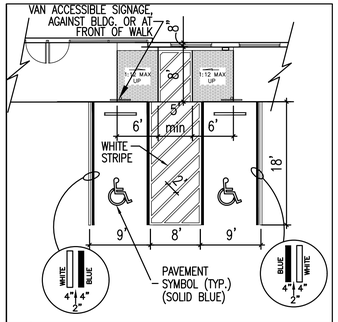
NOTE: Compacted subgrade and reinforcing should be as specified in soils report.



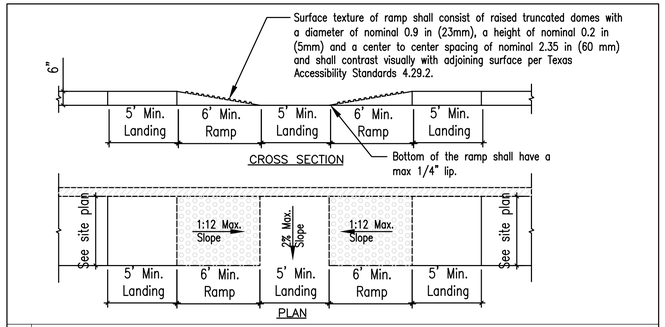
NOTE: See Geotechnical Report by Partner dated 06-02-2020 for more information.

NO SCALE

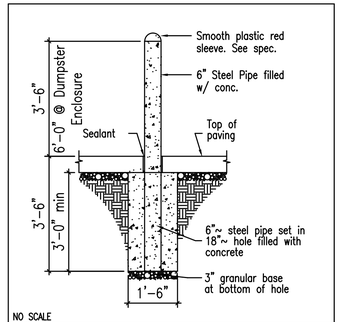
3 CONCRETE PAVING SECTION



18 HANDICAP PARKING DETAIL

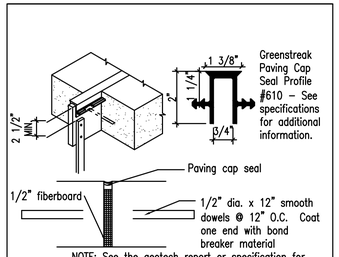


14 HANDICAP PARKING RAMP



NO SCALE

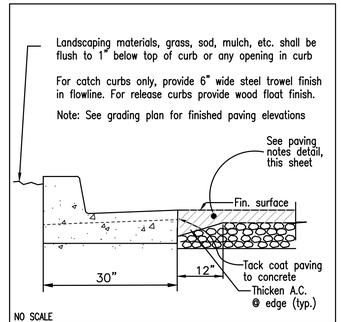
10 TYPICAL BOLLARD SECTION



NOTE: See the geotech report or specification for spacing requirements the more stringent will apply.

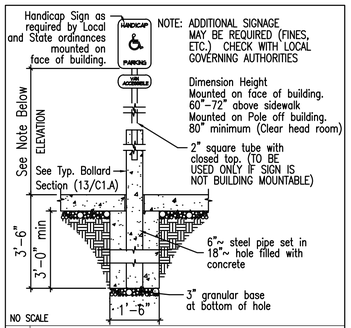
NO SCALE

6 TYPICAL EXPANSION JOINT



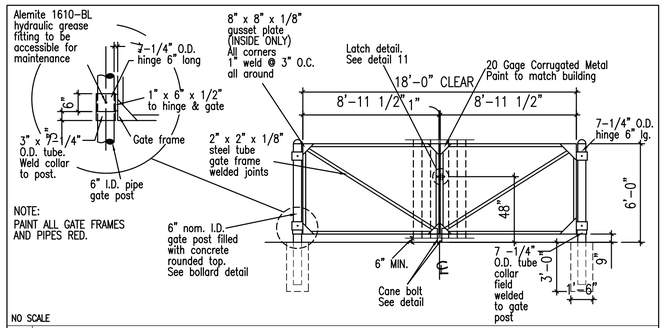
NO SCALE

2 CURB at ASPHALT PAVING



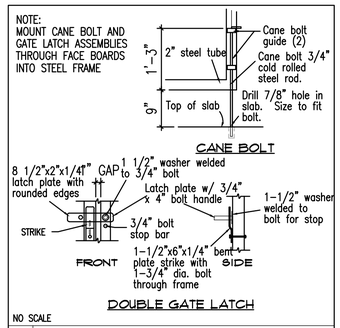
NO SCALE

17 BOLLARD MOUNTED HANDICAP SIGN



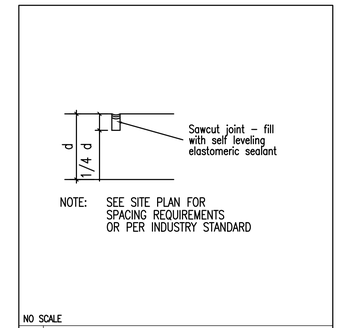
NO SCALE

13 GATE DETAIL FOR DUMPSTER ENCLOSURE



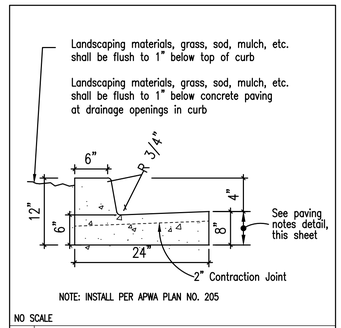
NO SCALE

9 GATE LATCH / BOLT DETAILS



NO SCALE

5 TYPICAL CONTROL JOINT



NOTE: INSTALL PER APWA PLAN NO. 205

NO SCALE

1 APWA TYPE E CURB AND GUTTER

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client
20-108DT

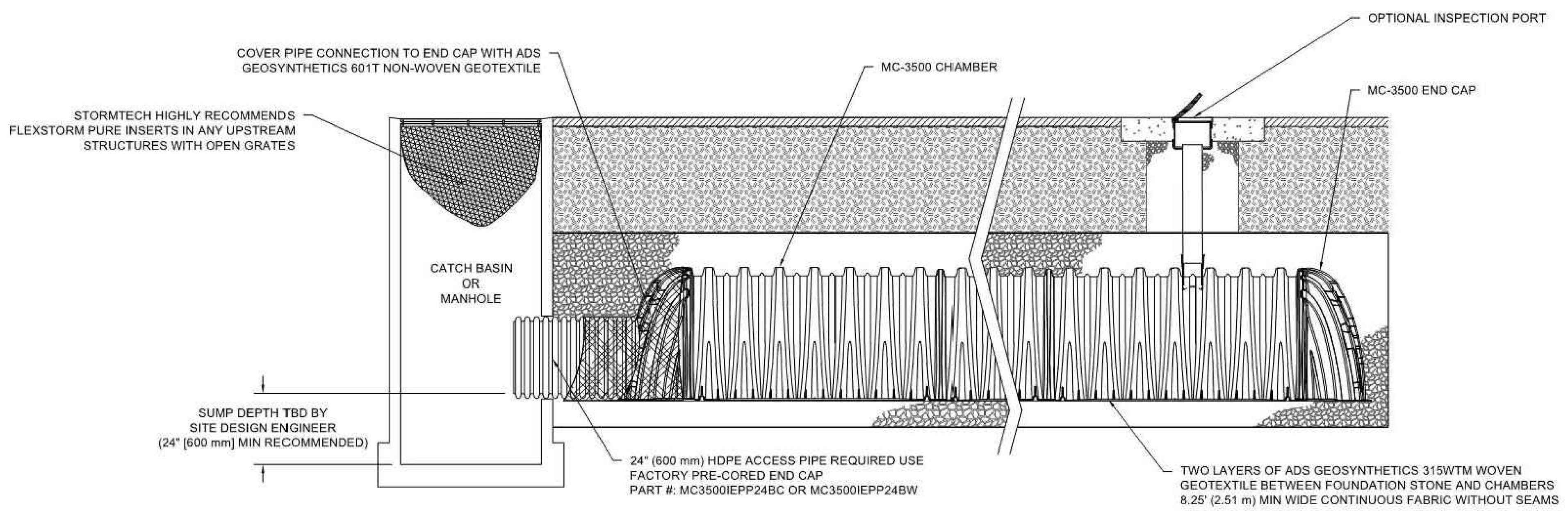
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWengineering.net

Details

AutoZone – Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.A



OPTIONAL INSPECTION PORT
COVER PIPE CONNECTION TO END CAP WITH ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE
MC-3500 CHAMBER
MC-3500 END CAP
STORMTECH HIGHLY RECOMMENDS FLEXSTORM PURE INSERTS IN ANY UPSTREAM STRUCTURES WITH OPEN GRATES
CATCH BASIN OR MANHOLE
SUMP DEPTH TBD BY SITE DESIGN ENGINEER (24" [600 mm] MIN RECOMMENDED)
24" (600 mm) HDPE ACCESS PIPE REQUIRED USE FACTORY PRE-CORED END CAP PART #: MC3500IEPP24BC OR MC3500IEPP24BW
TWO LAYERS OF ADS GEOSYNTHETICS 315WTM WOVEN GEOTEXTILE BETWEEN FOUNDATION STONE AND CHAMBERS 8.25' (2.51 m) MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS

MC-3500 ISOLATOR ROW DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

AUTOZONE 2099CF — ROOSEVELT, UT — DATE: — DRAWN: BA — PROJECT #: — CHECKED: N/A — REV / DRW / CHK / DESCRIPTION

StormTech — 520 CROMWELL AVENUE | ROCKY HILL | CT | 06067 — 860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

ADS — ADVANCED DRAINAGE SYSTEMS, INC. — 4640 TRUEMAN BLVD HILLIARD, OH 43026 1-800-733-7473

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

SHEET 4 OF 6

24 — ADS Details 4 of 6

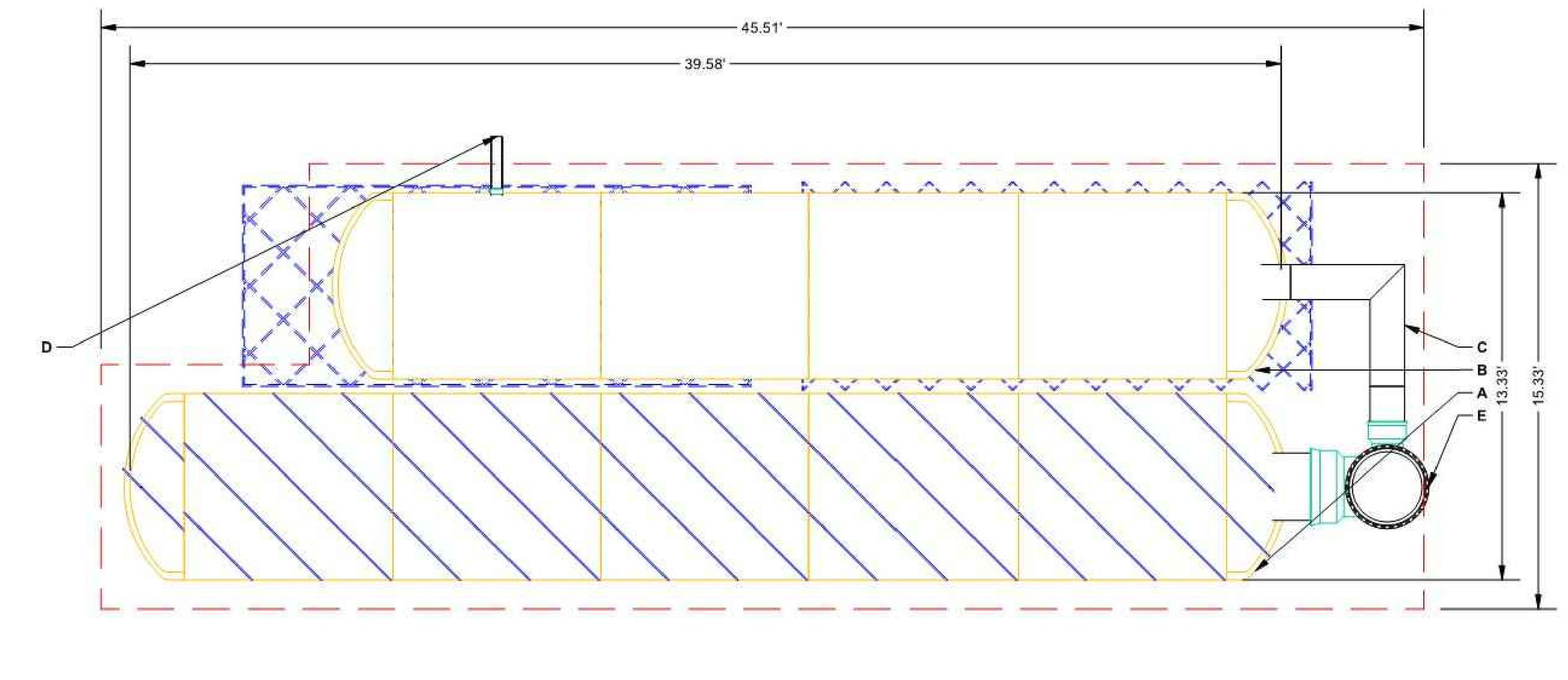
Not to Scale

PROPOSED LAYOUT	
9	STORMTECH MC-3500 CHAMBERS
4	STORMTECH MC-3500 END CAPS
16	STONE ABOVE (in)
9	STONE BELOW (in)
40	STONE VOID
2142	INSTALLED SYSTEM VOLUME (CF) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)
648	SYSTEM AREA (SF)
121.7	SYSTEM PERIMETER (ft)

CONCEPTUAL ELEVATIONS	
MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	12.50
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	7.00
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	6.00
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	6.00
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	6.00
TOP OF STONE:	5.83
TOP OF MC-3500 CHAMBER:	4.50
12" x 12" TOP MANIFOLD INVERT:	2.95
4" INSERTA TEE INVERT:	1.25
24" ISOLATOR ROW INVERT:	0.92
BOTTOM OF MC-3500 CHAMBER:	0.75
BOTTOM OF STONE:	0.00

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	24" BOTTOM CORED END CAP/TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR ROWS	2.06"	
PREFABRICATED END CAP	B	12" TOP CORED END CAP/TYP OF ALL 12" TOP CONNECTIONS	26.40"	
MANIFOLD	C	12" x 12" TOP MANIFOLD, ADS N-12	26.36"	
INSERTA TEE	D	4" DIAMETER	6.00"	
NYLOPLAST (INLET W/ ISO ROW)	E	30" DIAMETER (24.00" SUMP MIN)		2.5 CFS IN



ISOLATOR ROW (SEE DETAIL)

PLACE MINIMUM 17.50' OF ADS GEOSYNTHETICS 315WTM WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

BED LIMITS

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

SHEET 2 OF 6

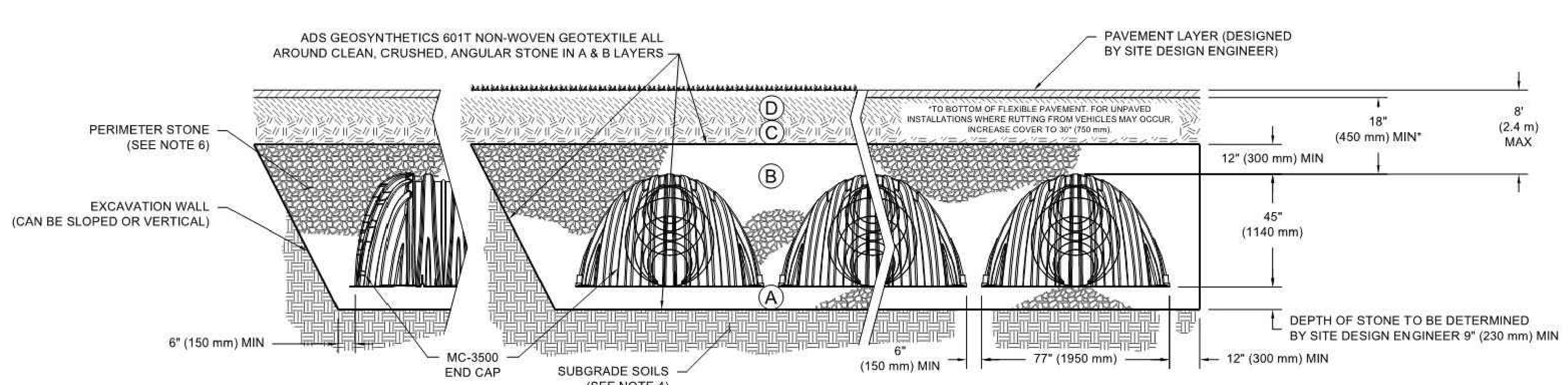
22 — ADS Details 2 of 6

Not to Scale

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



ADS GEOSYNTHETICS 601T NON-WOVEN GEOTEXTILE ALL AROUND CLEAN, CRUSHED, ANGULAR STONE IN A & B LAYERS
PAVEMENT LAYER (DESIGNED BY SITE DESIGN ENGINEER)
PERIMETER STONE (SEE NOTE 6)
EXCAVATION WALL (CAN BE SLOPED OR VERTICAL)
D
C
B
A
18" (450 mm) MIN*
8' (2.4 m) MAX
12" (300 mm) MIN
45" (1140 mm)
6" (150 mm) MIN
MC-3500 END CAP
SUBGRADE SOILS (SEE NOTE 4)
6" (150 mm) MIN
77" (1950 mm)
12" (300 mm) MIN
DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER 9" (230 mm) MIN

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
2. MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SHEET 3 OF 6

23 — ADS Details 3 of 6

Not to Scale

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

ADVANCED DRAINAGE SYSTEMS, INC.

AUTOZONE 2099CF

ROOSEVELT, UT

SiteASSIST — FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-3500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45x76 DESIGNATION SS.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-3500 CHAMBER SYSTEM

1. STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
10. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

21 — ADS Details 1 of 6

Not to Scale

REV | DATE | DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name: Client

20-108DT

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 ~ AWAengineering.net

Details

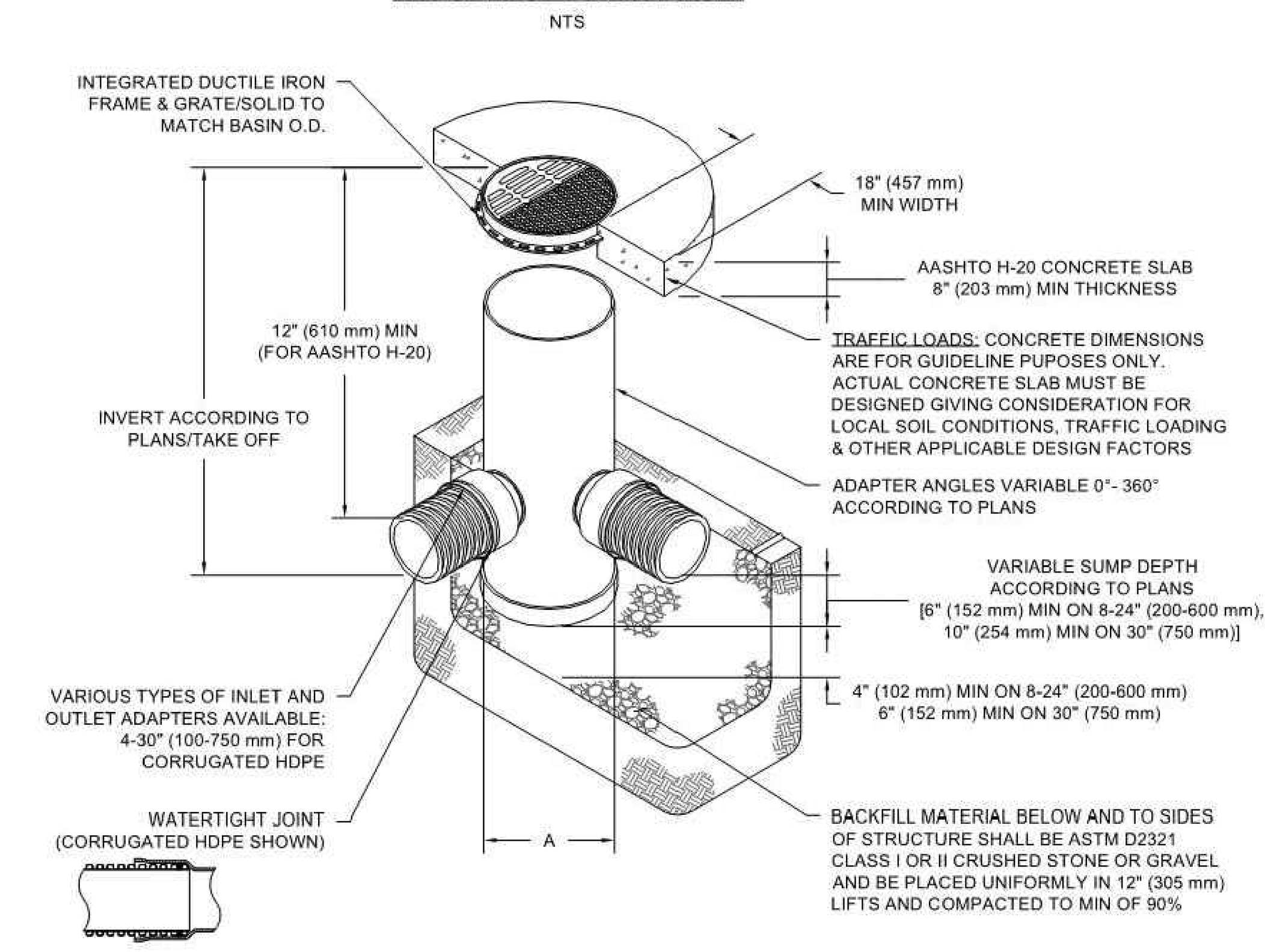
AutoZone - Roosevelt

740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO. **C1.B**

NYLOPLAST DRAIN BASIN
NTS

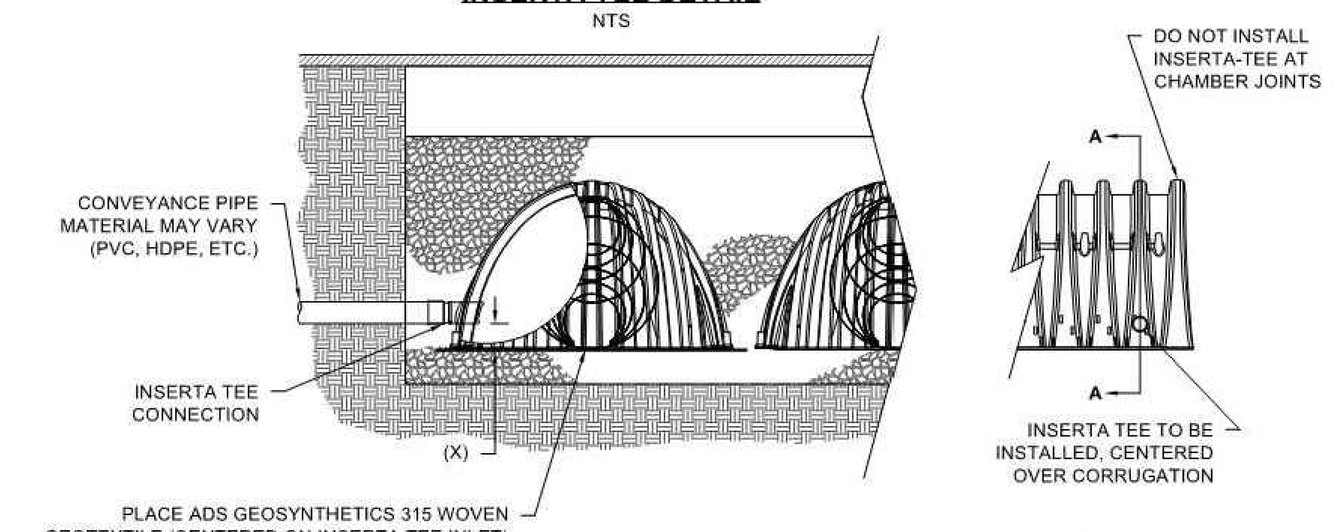


INTEGRATED DUCTILE IRON FRAME & GRATE/SOLID TO MATCH BASIN O.D.
18" (457 mm) MIN WIDTH
AASHTO H-20 CONCRETE SLAB 8" (203 mm) MIN THICKNESS
12" (610 mm) MIN (FOR AASHTO H-20)
TRAFFIC LOADS: CONCRETE DIMENSIONS ARE FOR GUIDELINE PUPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED GIVING CONSIDERATION FOR LOCAL SOIL CONDITIONS, TRAFFIC LOADING & OTHER APPLICABLE DESIGN FACTORS
INVERT ACCORDING TO PLANS/TAKE OFF
ADAPTER ANGLES VARIABLE 0°- 360° ACCORDING TO PLANS
VARIABLE SUMP DEPTH ACCORDING TO PLANS [6" (152 mm) MIN ON 8-24" (200-600 mm), 10" (254 mm) MIN ON 30" (750 mm)]
4" (102 mm) MIN ON 8-24" (200-600 mm) 6" (152 mm) MIN ON 30" (750 mm)
VARIOUS TYPES OF INLET AND OUTLET ADAPTERS AVAILABLE: 4-30" (100-750 mm) FOR CORRUGATED HDPE
WATERTIGHT JOINT (CORRUGATED HDPE SHOWN)
A
BACKFILL MATERIAL BELOW AND TO SIDES OF STRUCTURE SHALL BE ASTM D2321 CLASS I OR II CRUSHED STONE OR GRAVEL AND BE PLACED UNIFORMLY IN 12" (305 mm) LIFTS AND COMPACTED TO MIN OF 90%

NOTES
1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION: **WWW.NYLOPLAST-US.COM**
6. TO ORDER CALL: **800-821-6710**

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

INSERTA TEE DETAIL
NTS



PLACE ADS GEOSYNTHETICS 315 WOVEN GEOTEXTILE (CENTERED ON INSERTA-TEE INLET) OVER BEDDING STONE FOR SCOUR PROTECTION AT SIDE INLET CONNECTIONS. GEOTEXTILE MUST EXTEND 6" (150 mm) PAST CHAMBER FOOT

SECTION A-A

SIDE VIEW

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

AUTOZONE 2099CF
ROOSEVELT, UT
DATE: | DRAWN: BA
PROJECT #: | CHECKED: N/A

REV | DRW | CHK | DESCRIPTION

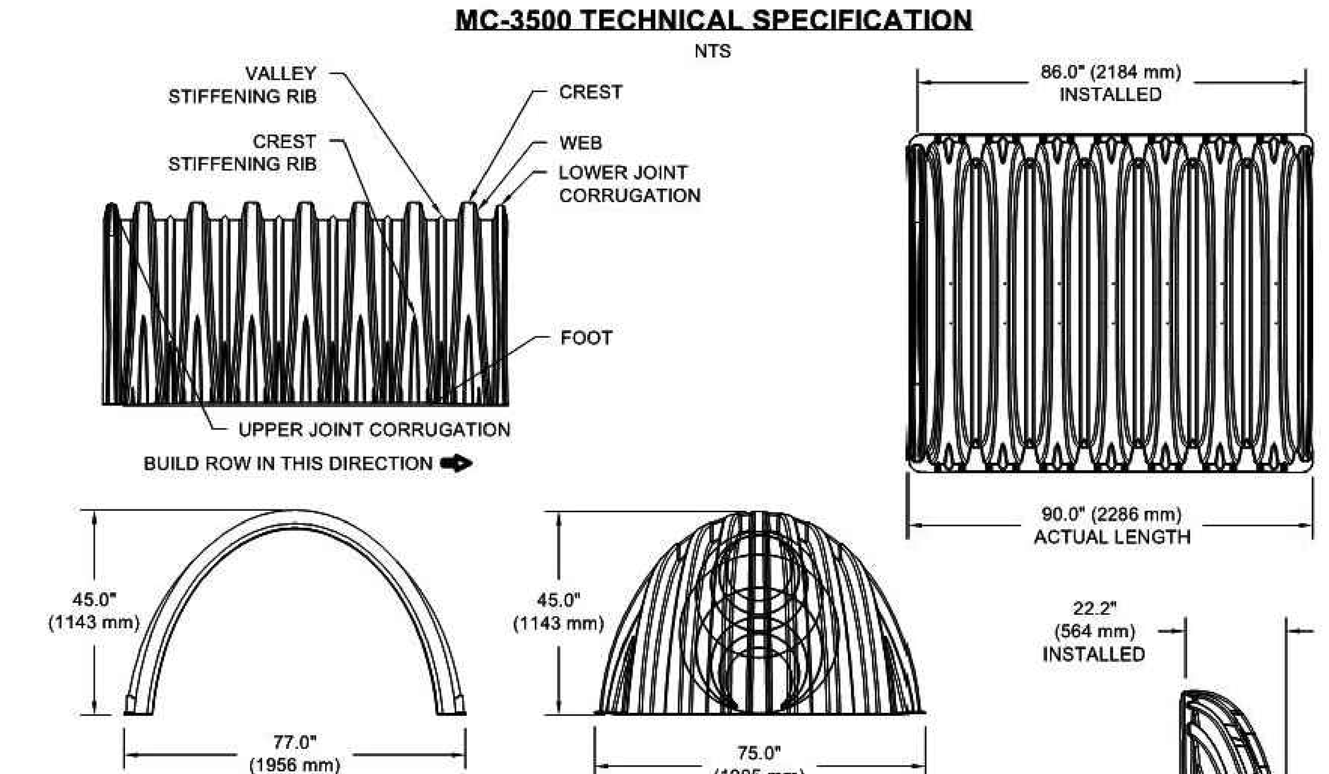
Nyloplast
3130 VERONA AVE
BUFORD, GA 30518

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SHEET
6 OF 6

(26) **ADS Details 6 of 6**
Not to Scale

MC-3500 TECHNICAL SPECIFICATION
NTS



VALLEY STIFFENING RIB
CREST STIFFENING RIB
CREST
WEB
LOWER JOINT CORRUGATION
FOOT
UPPER JOINT CORRUGATION
BUILD ROW IN THIS DIRECTION
86.0" (2184 mm) INSTALLED
90.0" (2286 mm) ACTUAL LENGTH
45.0" (1143 mm)
77.0" (1956 mm)
75.0" (1905 mm)
22.2" (564 mm) INSTALLED
25.7" (653 mm)

NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

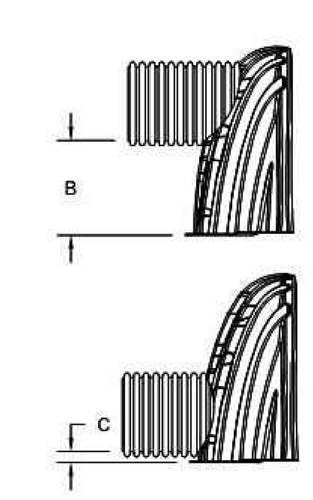
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

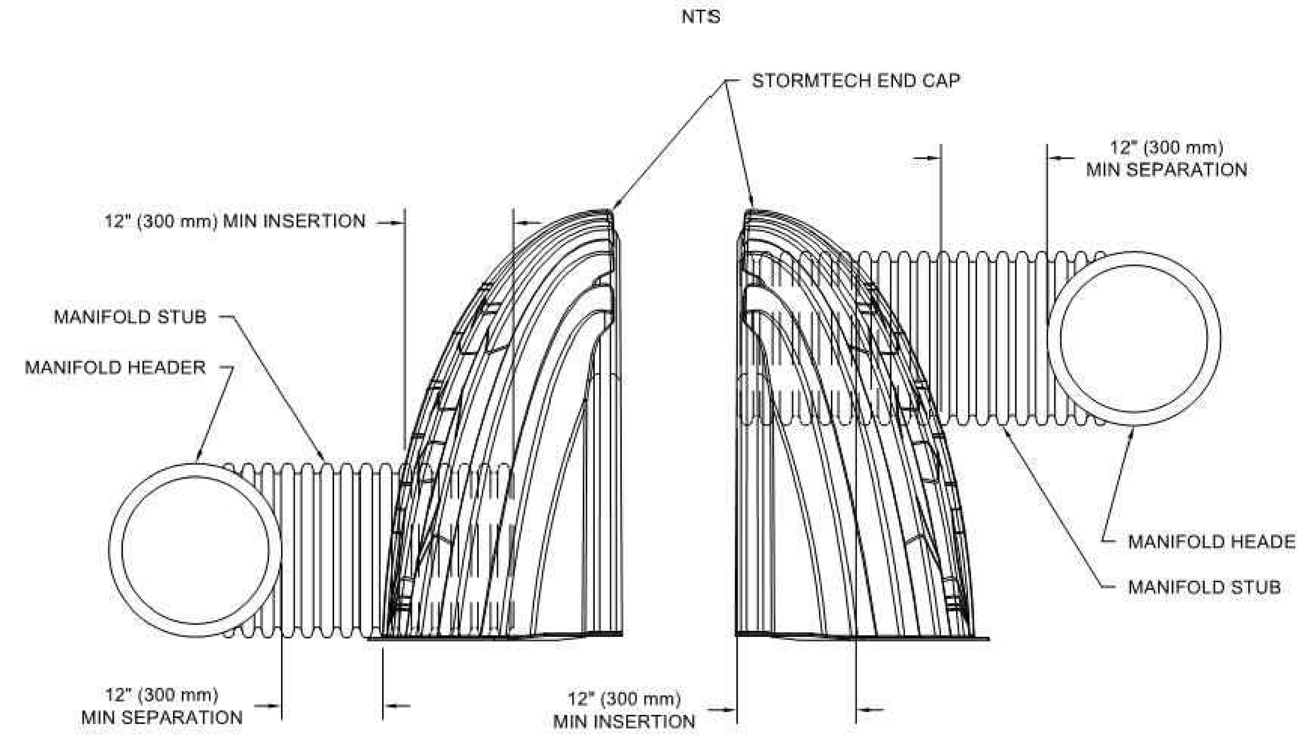
PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL
NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

AUTOZONE 2099CF
ROOSEVELT, UT
DATE: | DRAWN: BA
PROJECT #: | CHECKED: N/A

REV | DRW | CHK | DESCRIPTION

StormTech

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SHEET
5 OF 6

(25) **ADS Details 5 of 6**
Not to Scale

REV | DATE | DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client
20-108DT

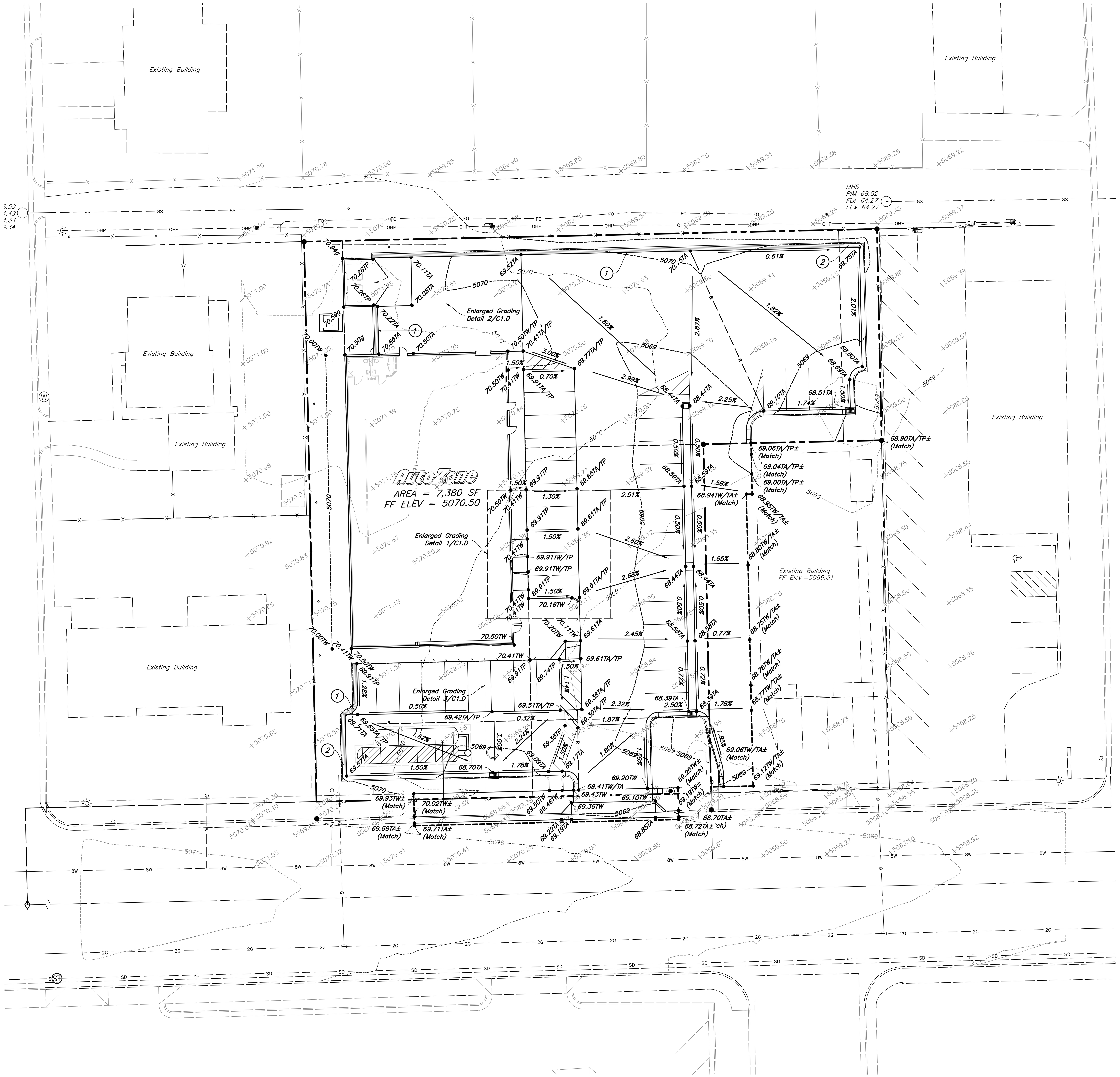
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWAengineering.net

Details

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.C



Scale: 1" = 20'

20' 0 20' 40'

General Grading Notes:

1. All grading shall be in accordance with the project geotechnical study.
2. Cut slopes shall be no steeper than 3 horizontal to 1 vertical.
3. Fill slopes shall be no steeper than 3 horizontal to 1 vertical.
4. Fills shall be compacted per the recommendations of the geotechnical report prepared for the project and shall be certified by a Geotechnical Engineer.
5. Areas to receive fill shall be properly prepared and approved by a Geotechnical Engineer prior to placing fill.
6. Fills shall be benched into competent material as per specifications and geotechnical report.
7. All trench backfill shall be tested and certified by a Geotechnical Engineer.
8. A geotechnical engineer shall perform periodic inspections and submit a complete report and map upon completion of the rough grading.
9. The final compaction report and certification from a Geotechnical Engineer shall contain the type of field testing performed. Each test shall be identified with the method of obtaining the in-place density, whether sand cone or drive ring and shall be so noted for each test. Sufficient maximum density determinations shall be performed to verify the accuracy of the maximum density curves used by the field technician.
10. Dust shall be controlled by watering.
11. The location and protection of all utilities is the responsibility of the permitee.
12. Approved protective measures and temporary drainage provisions must be used to protect adjoining properties during the grading process.
13. All public roadways must be cleared daily of all dirt, mud and debris deposited on them as a result of the grading operation. Cleaning is to be done to the satisfaction of the City Engineer.
14. The site shall be cleared and grubbed of all vegetation and deleterious matter prior to grading.
15. The contractor shall provide shoring in accordance with OSHA requirements for trench walls.
16. Aggregate base shall be compacted per the geotechnical report prepared for the project.
17. The recommendations in the following Geotechnical Engineering Report by Partner are included in the requirements of grading and site Preparation. The Report is titled "West Haven AutoZone of Midland Drive and 4000 South"

    Project No.: 19-254109.3
    Dated: February 20, 2020
18. As part of the construction documents, owner has provided contractor with a topographic survey performed by manual or aerial means. Such survey was prepared for project design purposes and is provided to the contractor as a courtesy. It is expressly understood that such survey may not accurately reflect existing topographic conditions.
19. If Contractor observes evidence of hazardous materials or contaminated soils he shall immediately contact the project engineer to provide notification and obtain direction before proceeding with disturbance of said materials or contaminated soil.

Curb and Gutter Construction Notes:

1. Open face gutter shall be constructed where drainage is directed away from curb.
2. (1) Open face gutter locations are indicated by shading and notes on the grading plan.
3. It is the responsibility of the surveyor to adjust top of asphalt grades to top of curb grades at the time of construction staking.
4. Refer to the typical details for standard and open face curb and gutter dimensions.
5. (2) Transitions from open face to standard curb and gutter are to be smooth. Hand form these areas if necessary.
6. Spot elevations are shown on this plan with text masking. Coordinate and verify site information with project drawings.

Sidewalk Construction Notes:

1. Concrete sidewalk shall be constructed with a cross slope of 1.5% (2.08% Maximum) unless shown otherwise on plan.
2. Running slope of sidewalks shall be built per grades shown on the plan. where grades are not provided, sidewalks shall be constructed with a maximum running slope of 4.5%
3. Refer to the Site Plan for sidewalk dimensions.

PVC Pipe Protection During Construction:
PVC Pipe must have 24" cover for heavy construction loading during construction. The Contractor is responsible to temporarily protect any pipes with less than 24" cover by berming over the pipes.

REV | DATE | DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-108GR

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWAengineering.net

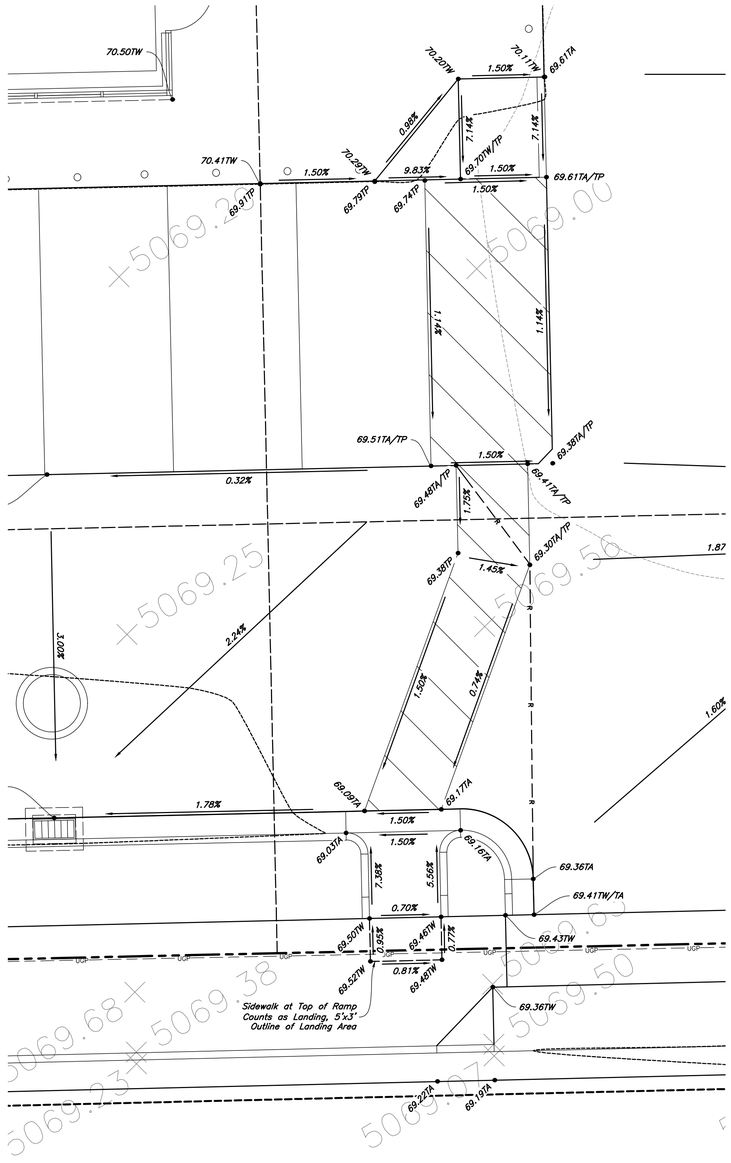
Grading Plan

AutoZone - Roosevelt

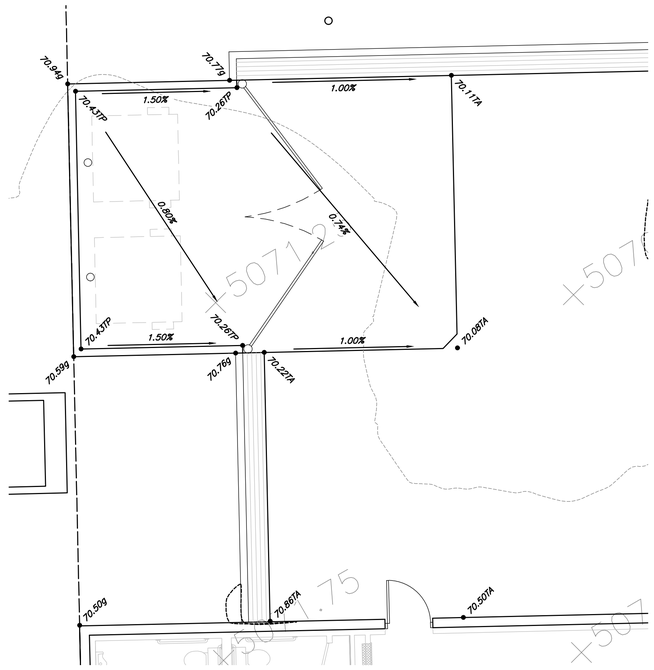
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.2



ADA Accessible Route
Enlarged Grading Detail
3
Scale: 1" = 5'

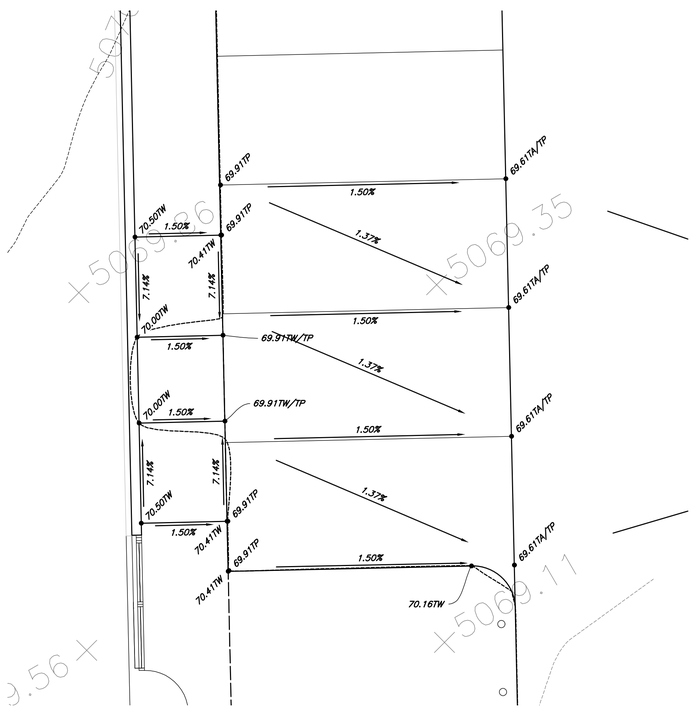


Dumpster Enclosure/Loading
Ramp Enlarged Grading Detail
2
Scale: 1" = 5'

Prior to any construction of any Accessible Improvements, a Pre-Construction meeting shall be held between Contractor and Engineer. Contractor is Responsible to contact Engineer and Schedule Pre-Construction Meeting

Private Curb Ramp Construction Notes

1. *Slopes provided are per Anderson Wahlen & Associates design standards. Slopes shown are below ADA and ICC maximum requirements, unless noted otherwise in project plans.*
2. *The Client, Contractor and Subcontractor should immediately notify the Consultant of any conditions of the project that they believe do not comply with the current state of Accessible and Usable Buildings and Facilities (ICC/ANSI A117.1-Latest Edition) and/or FHAA.*
3. *Counter slopes of adjoining gutters & paving adjacent to the curb ramp shall not be steeper than 4.50%.*
4. *Accessible ramp flares shall be poured separately from ramp to ensure proper slopes.*
5. *Contractor to transition curb or sidewalk height from 6" to 0" reveal. Curb or sidewalk height to match ramp throughout transition.*



Accessible Ramp/Parking
Enlarged Grading Detail
1
Scale: 1" = 5'

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client
20-108GR

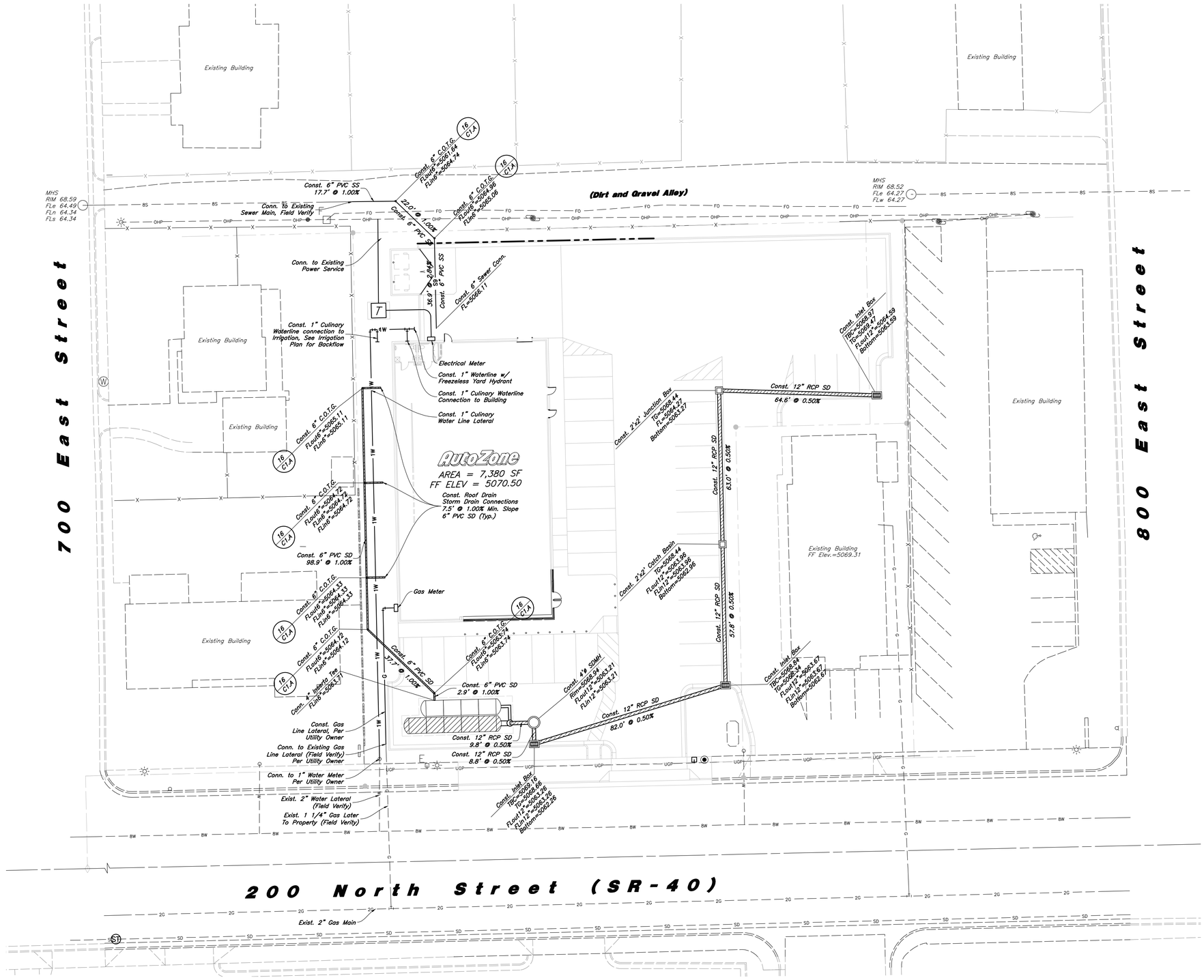
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWengineering.net

Grading Details and Notes

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.D



Scale: 1" = 20'

20' 0 20' 40'

General Utility Notes:

1. All sewer and water facilities shall be constructed per local jurisdiction standards and specifications. Contractor is responsible to obtain standards and specifications.
2. Coordinate all utility connections to building with plumbing plans and building contractor.
3. Verify depth and location of all existing utilities prior to constructing any new utility lines. Notify Civil Engineer of any discrepancies or conflicts prior to any connections being made.
4. All catch basin and inlet box grates are to be bicycle proof.
5. Refer to the site electrical plan for details and locations of electrical lines, transformers and light poles.
6. Gas lines, telephone lines, and cable TV lines are not a part of these plans.
7. Water meters are to be installed per city standards and specifications. Install Mueller 5/8" x/ Hotrod Radio Per City Requirements. It will be the contractor's responsibility to install all items required.
8. Water lines, valves, fire hydrants, fittings etc. are to be constructed as shown. Contractor is responsible, at no cost to the owner, to construct any vertical adjustments necessary to clear sewer, storm drain, or other utilities as necessary including valve boxes and hydrant spools to proper grade.
9. Contractor shall install a 12" concrete collar around all manholes, valves, catch basins, cleanouts & any other structures located within the asphalt.

Utility Piping Materials:

All piping materials shall be per local agency standards or the specifications below at a minimum. All utility piping shall be installed per manufacturers recommendations. Refer to project specifications for more detailed information regarding materials, installation, etc.

Culinary Service Laterals

1. Polyethylene (PE) Water Pipe (Up to 3 inches diameter), AWWA C901, PE 3408, SDR 9 (200 psi)

Water Main Lines and Fire Lines

1. Polyvinyl Chloride (PVC) (4 inches to 12 inches diameter): AWWA C900, Class 200

Sanitary Sewer Lines

1. All sewer piping to be Polyvinyl Chloride (PVC) sewer pipe, ASTM D3034, Type PSM, SDR 35

Storm Drain Lines

1. 12" pipes or smaller – Polyvinyl Chloride (PVC) sewer pipe, ASTM D3034, Type PSM, SDR 35
2. 15" pipes or larger – Reinforced Concrete Pipe, ASTM C76, Class III

CAUTION :

The locations and/or elevations of existing utilities as shown on these plans are based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied on as being exact or complete.

Storm Drain & Sanitary Sewer Note:

All Storm Drainage & Sanitary Sewer Pipe Lengths and Slopes are from Center of Structure to Center of Structure

Onsite Utility Connection Notes:

1. Contractor shall field verify all utility connection elevations prior to any utility construction has begun.
2. Contractor shall construct utility lines into site prior to any onsite utility construction. Gravity lines are to be constructed starting at the lowest point and be installed prior to any waterline installation
3. Construction of any onsite utilities prior to the offsite connection will be done at the contractors risk.

Know what's below. 811 Call 811 before you dig.
BLUE STAKES OF UTAH
UTILITY NOTIFICATION CENTER, INC.
www.bluestakes.org
1-800-662-4111

RDY	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client
20-108UT

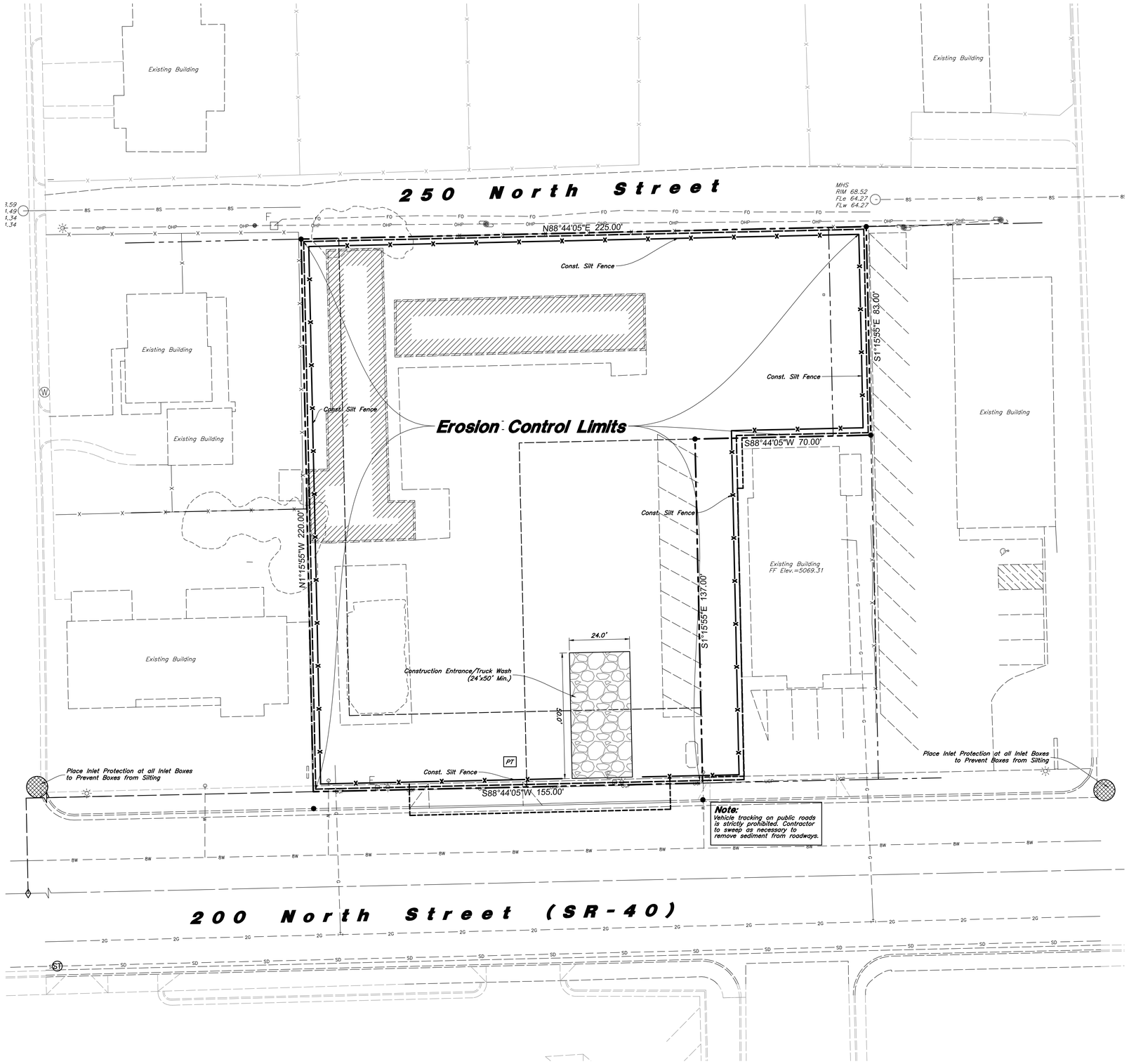
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWEngineering.net

Utility Plan

AutoZone – Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.3



Scale: 1" = 20'

20' 0 20' 40'

Legend

- Place Inlet Protection at all Inlet Locations to prevent boxes from silting.
- Silt Fence
- Limit of Disturbance
- Construction Entrance / Truck Wash (50'x24' Min.)
- Concrete Washout Area — CW
- Portable Toilet — PT
- Gravel Sock
- Existing Contour
- Existing Spot
- Proposed Contour

Erosion Control Notes

1. Storm water will be discharged into an existing drainage system. Existing Lines shall be inspected prior to Certificate of Occupancy and cleaned if necessary.
2. The Storm Water Prevention Plan shall conform to all State Division of Environmental Protection Regulations.
3. All Construction equipment will enter thru Designated Construction Entrances.
4. Coordinate Entrance locations with the local jurisdiction.
5. Inlet Protection Devices and Barriers shall be Repaired or Replaced if they Show Signs of Undermining or Deterioration.
6. Silt Fences shall be Repaired to their Original Conditions if Damaged, Sediment shall be Removed from Silt Fences when it Reaches one-half the Height of the Silt Fence.
7. The Construction Entrances shall be Maintained in a Condition which will Prevent Tracking or Flow of Mud onto Public Right-of-Way. This may Require Periodic Top Dressing of the Construction Entrances as Conditions Demand.
8. All Materials Spilled, Dropped, Washed or Tracked from Vehicles onto Roadways or into Storm Drains must be Removed Immediately.
9. Due to the Grade Changes During the Development of the Project, the Contractor shall be Responsible for Adjusting the Erosion Control Measures (Silt Fences, Inlet Protection, Etc...) to Prevent Erosion.
10. Contractor shall use Vehicle Tracking Control at all Locations where Vehicles will Enter or Exit the Site. Control Facilities will be Maintained while Construction is in Progress, Moved when Necessary and Removed when the Site is Paved.
11. Inlet Protection Devices shall be Installed Immediately upon Individual Inlets becoming Functional.
12. This Document is Fluid Allowing for Changes, Modifications, Updates and Alternatives. It is the Responsibility of the Contractor to Keep Record of all Alterations made to the Erosion Control Measures Implemented for the Project on this Plan and in the Storm Water Pollution Prevention Plan.
13. Cover Exposed stockpiles of soils, construction and landscaping materials with heavy plastic sheeting.
14. Re-vegetate areas where landscaping has died or not taken hold.
15. Divert storm water runoff around disturbed soils with berms or dirt swales.
16. Contractor to provide permanent stabilization to any areas disturbed by construction by hydroseeding native vegetation (if not otherwise stabilized).
17. Contractor is responsible for obtaining a fugitive dust control permit through the Division of Air Quality. All responsibilities relating to the production of the dust control plan shall be the responsibility of the Contractor.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-108EC1

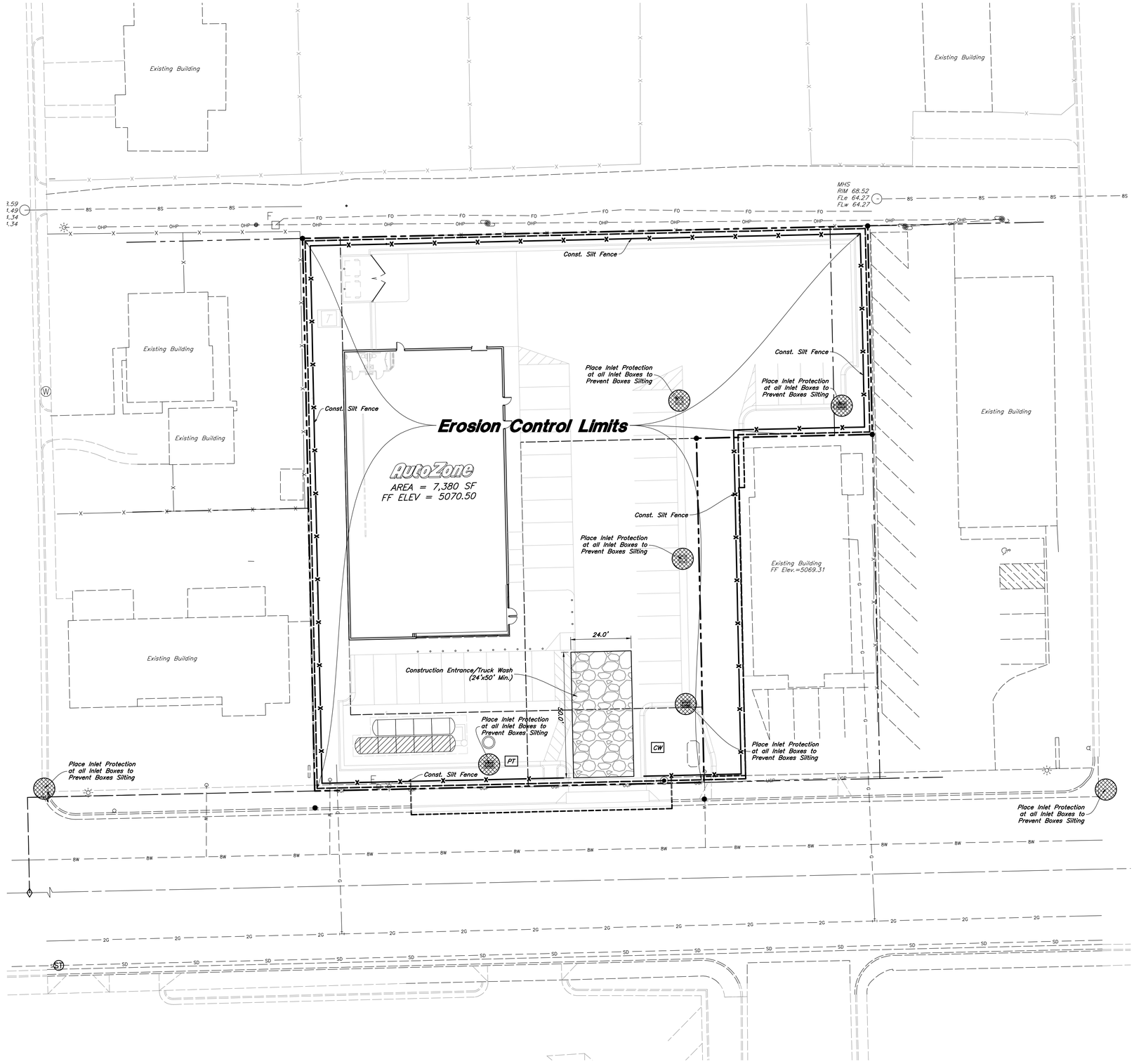
ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWengineering.net

Erosion Control Plan - Phase 1

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.4



Scale: 1" = 20'

20' 0 20' 40'

Legend

- Place Inlet Protection at all Inlet Locations to prevent boxes from silting.
- Silt Fence
- Limit of Disturbance
- Construction Entrance / Truck Wash (50'x24' Min.)
- Concrete Washout Area (CW)
- Portable Toilet (PT)
- Gravel Sock
- Existing Contour (-78-)
- Existing Spot (78.00TA)
- Proposed Contour (-78-)

Erosion Control Notes

1. Storm water will be discharged into an existing drainage system. Existing Lines shall be inspected prior to Certificate of Occupancy and cleaned if necessary.
2. The Storm Water Prevention Plan shall conform to all State Division of Environmental Protection Regulations.
3. All Construction equipment will enter thru Designated Construction Entrances.
4. Coordinate Entrance locations with the local jurisdiction.
5. Inlet Protection Devices and Barriers shall be Repaired or Replaced if they Show Signs of Undermining or Deterioration.
6. Silt Fences shall be Repaired to their Original Conditions if Damaged, Sediment shall be Removed from Silt Fences when it Reaches one-half the Height of the Silt Fence.
7. The Construction Entrances shall be Maintained in a Condition which will Prevent Tracking or Flow of Mud onto Public Right-of-Way. This may Require Periodic Top Dressing of the Construction Entrances as Conditions Demand.
8. All Materials Spilled, Dropped, Washed or Tracked from Vehicles onto Roadways or into Storm Drains must be Removed Immediately.
9. Due to the Grade Changes During the Development of the Project, the Contractor shall be Responsible for Adjusting the Erosion Control Measures (Silt Fences, Inlet Protection, Etc...) to Prevent Erosion.
10. Contractor shall use Vehicle Tracking Control at all Locations where Vehicles will Enter or Exit the Site. Control Facilities will be Maintained while Construction is in Progress, Moved when Necessary and Removed when the Site is Paved.
11. Inlet Protection Devices shall be Installed Immediately upon Individual Inlets becoming Functional.
12. This Document is Fluid Allowing for Changes, Modifications, Updates and Alternatives. It is the Responsibility of the Contractor to Keep Record of all Alterations made to the Erosion Control Measures Implemented for the Project on this Plan and in the Storm Water Pollution Prevention Plan.
13. Cover Exposed stockpiles of soils, construction and landscaping materials with heavy plastic sheeting.
14. Re-vegetate areas where landscaping has died or not taken hold.
15. Divert storm water runoff around disturbed soils with berms or dirt swales.
16. Contractor to provide permanent stabilization to any areas disturbed by construction by hydroseeding native vegetation (if not otherwise stabilized).
17. Contractor is responsible for obtaining a fugitive dust control permit through the Division of Air Quality. All responsibilities relating to the production of the dust control plan shall be the responsibility of the Contractor.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-108EC2

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWengineering.net

Erosion Control Plan - Phase 2

AutoZone - Roosevelt

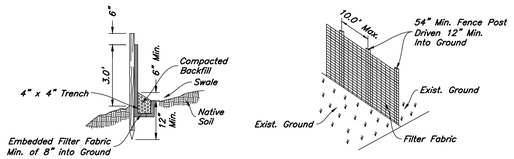
740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.5

6 Not Used

Not to Scale



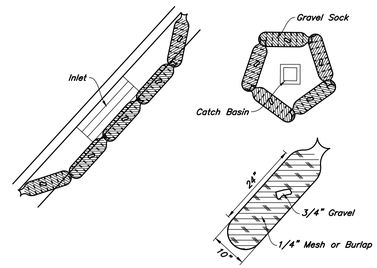
Posts: Steel Either T or U Type or 2"x2" Hardwood
Filter Fabric: 1. MIRAFI 140N
2. Dupont TYPAR 3341
3. or Approved Equal

Notes:

1. Filter cloth to be fastened securely to fence posts with wire ties or staples.
2. When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
3. Collected material shall be removed when "bulges" develop in the silt fence.

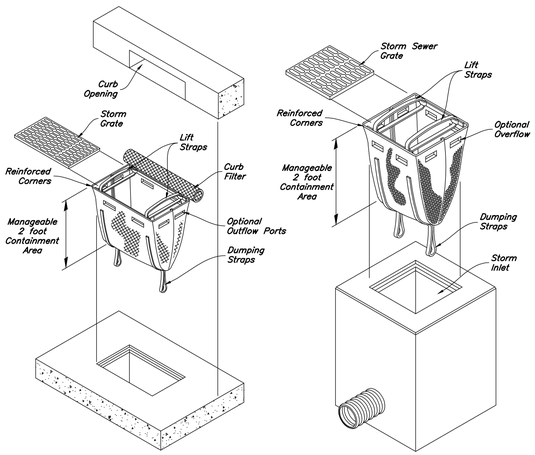
3 Silt Fence Section

Not to Scale



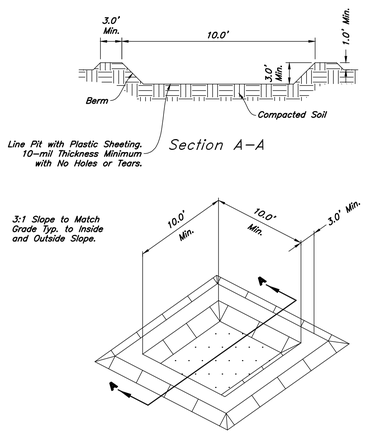
5 Gravel Sock Sediment Barrier

Not to Scale



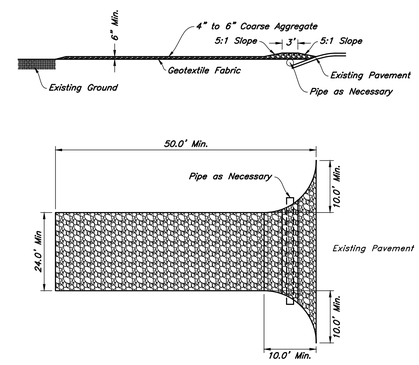
2 Dandy Sack Inlet Protection

Not to Scale



4 Concrete Washout

Not to Scale



1 Stabilized Construction Entrance

Not to Scale

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client

20-108EC2

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWengineering.net

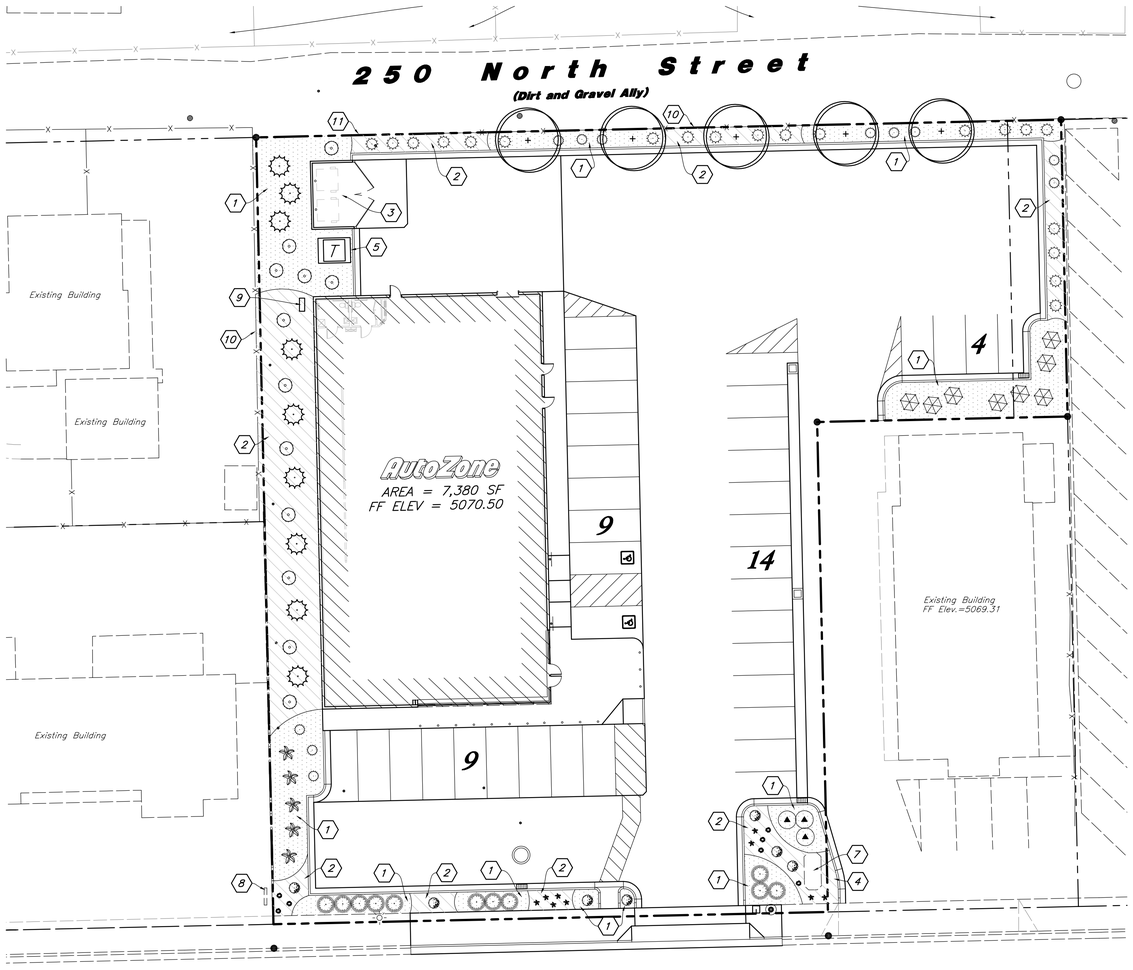
Erosion Control Details

AutoZone - Roosevelt

740 East 200 North
Roosevelt, Utah

15 July, 2020

SHEET NO.
C1.E



PLANT SCHEDULE

TREES	QTY	BOTANICAL / COMMON NAME	SIZE
	5	Acer x freemanii 'Jeffsred' / Autumn Blaze Freeman Maple	2" Cal. / 6-8' Ht.
	9	Pinus nigra 'Arnold Sentinel' / Arnold Sentinel Austrian Black Pine	6-8' Ht.
SHRUBS	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	3	Forsythia x 'Gold Tides' / Golden Tide Forsythia	5 gal
	5	Hydrangea paniculata 'Limelight' / Limelight Hydrangea	5 gal
	11	Juniperus sabina 'Buffalo' / Buffalo Juniper	5 gal
	12	Physocarpus opulifolius 'Summer Wine' / Summer Wine Ninebark	5 gal
	11	Pinus mugo 'Slowmound' / Slowmound Mugo Pine	5 gal
	8	Rhus aromatica 'Gro-Low' / Gro-Low Fragrant Sumac	5 gal
	20	Ribes alpinum 'Green Mound' / Green Mound Alpine Currant	5 gal
	7	Spiraea x bumalda 'Goldflame' / Goldflame Spirea	5 gal
PERENNIALS	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**
	9	Hemerocallis x 'Stella de Oro' / Stella de Oro Daylily	1 gal
	7	Nepeta x faassenii 'Dropmore' / Catmint	1 gal

MATERIAL SCHEDULE

Symbol	Comments	Detail
	Decorative Stone #1 - Install a (3) Three Inch Depth over Dewitt Pro5 Weed Barrier; Stone Shall be Used in all Shrub Planters Where Shown on Plan and Wash Prior to Installation; Stone Shall be 1 Inch Diameter Pelican Rock From KW Trucking or approved Equal; Submit Sample for Approval	Detail: 4/L3.1
	Decorative Stone #2 - Install a (5) Five Inch Depth over Dewitt Pro5 Weed Barrier; Stone Shall be Used in all Shrub Planters Where Shown on Plan and Wash Prior to Installation; Stone Shall be 3 Inch Diameter Cobble Rock From KW Trucking or approved Equal; Submit Sample for Approval	Detail: 4/L3.1

Scale: 1" = 20'

20' 0 20' 40'

Landscape Data

Site Area = 39,910 s.f. (.92 ac.)

Landscape Area Provided = 3,991 s.f. (10%)

Landscape Area Provided = 6,515 s.f. (16%)

Trees Required = 14 Trees (14 Provided)

General Landscape Notes:

1. See Sheet L3.1 for Planting Details.
2. All Landscape Material shall be Fully Irrigated by an Automatic Irrigation System. See Sheet L2.1 for Irrigation Layout and Sheet L3.1 for Details. Point Source Drip Shall be Used to Irrigate New Shrubs and Sprayheads for Lawn Areas.
3. Adjust Plant Material as Needed to Accommodate New and Existing Utilities.
4. No Edging Shall be Used Between Different Colored Stone. The Delineation Line Between Two Different Stone Shall be as Shown on Plan (Straight Lines & Smooth Curves)
5. All Shrubs Shall be a Minimum of 5 gallon.
6. Landscaping is to be Installed (or Bonded for if Occupancy is in a Nonplanting Season) Prior to Issuance of a Certificate of Occupancy.

Landscape Keynotes

1. Install Shrub Planter with Decorative Stone #1
2. Install Shrub Planter with Decorative Stone #2
3. New Trash Enclosure
4. Install Weed Barrier and Decorative Stone Adjacent to Sign; No Plant Material or Irrigation; Coordinate with Neighboring Business on Installation
5. New Elect. Transformer
6. New Light Pole
7. New Autozone Monument Sign by Separate Permit
8. Existing Neighboring Pylon Sign
9. Irrigation Backflow Preventer; Install Between Plant Material Where Shown on Plan; Provide Easy Access to Backflow; See Irrigation Plan for More Detail
10. Existing Fence to Remain
11. Existing Trees Overhanging Site Shall be Limbed up to 15' to Provide Access to Proposed Dumpster

Landscape Notes:

1. Plant material quantities are provided for bidding purposes only. It is the contractors responsibility to verify all quantities listed on the plans and the availability of all plant materials and their specified sizes prior to submitting a bid. The contractor must notify the Landscape Architect prior to submitting a bid if the contractor determines a quantity deficiency or availability problem with specified material. The contractor shall provide sufficient quantities of plants equal to the symbol count or to fill the area shown on the plan using the specified spacing. Plans take precedence over plant schedule quantities.
2. Contractor shall call Blue Stake before excavation for plant material.
3. Prior to construction, the contractor shall be responsible for locating all underground utilities and shall avoid damage to all utilities during the course of the work. It shall be the responsibility of the contractor to protect all utility lines during the construction period, and repair any and all damage to utilities, structures, site appurtenances, etc. which occurs as a result of the landscape construction.
4. The landscape contractor shall examine the site conditions under which the work is to be performed and notify the general contractor in writing of unsatisfactory conditians. Do not proceed until conditions have been corrected.
5. The contractor shall provide all materials, labor and equipment required for the proper completion of all landscape work as specified and shown on the drawings.
6. See civil and architectural drawings for all structures, hardscape, grading, and drainage information.
7. Contractor safety and cleanup must meet OSHA standards at all times. All contractors must have adequate liability, personnel injury and property damage insurance. Clean-up must be performed daily, and all hardscape areas must be washed free of dirt and mud on final cleanup. Construction must occur in a timely manner.
8. All new plant material shall conform to the minimum guidelines established by the American Standard for Nursery Stock Published by the American Association of Nurseryman, Inc. In addition, all new plant material shall be of specimen quality.
9. The Owner/Landscape Architect has the right to reject any and all plant material not conforming to the plans and specifications.
10. Any proposed substitutions of plant species shall be made with plants of equivalent overall form, height, branching habit, flower, leaf, color, fruit and culture only as approved by the Landscape Architect.
11. It is the contractors responsibility to furnish all plant materials free of pests or plant diseases. It is the contractor's obligation to maintain and warranty all plant materials.
12. The contractor shall take all necessary scheduling and other precautions to avoid winter, climatic, wildlife, or other damage to plants. The contractor shall install the appropriate plants at the appropriate time to guarantee life of plants
13. The contractor shall install all landscape material per plan, notes and details.
14. All existing and relocated trees shall be properly protected. Trees damaged during construction shall be replaced at no cost to the owner.
15. Plant names are abbreviated on the drawings, see plant ischedule for symbols, abbreviations, botanical, common names, sizes, estimated quantities and remarks.
16. No grading or soil placement shall be undertaken when soils are wet or frozen.
17. Imported topsoil shall be used for all landscape areas. The topsoil must be a premium quality dark sandy loam, free of rocks, clods, roots, and plant matter. The landscape contractor shall perform a soil test on the imported topsoil and amend per soil test recommendations. The soil test shall be done by a certified soil testing agency.
18. Prior to placement of topsoil in all landscaping areas, all subgrade areas shall be loosened by scarifying the soil to a depth of 6 inches in order to create a transition layer between existing and new soils.
19. Provide a 12" depth of imported topsoil in parking islands and an 8 inch depth in all other shrub areas.
20. All plant material holes shall be dug twice the diameter of the rootball and 6 inches deeper. Excavated material shall be removed from the site and replaced with plant backfill mixture. The top of the root balls, shall be planted flush with the finish grade.
21. Plant backfill mix shall be composed of 3 parts topsoil to 1 part soil pep, and shall be mixed at the planting hole.Deep water all plant material immediately after planting. Add backfill mixture to depressions as needed.
22. All new plants to be balled and burlapped or container grown, unless otherwise noted on plant schedule.
23. Upon completion of planting operations, all landscape areas with trees, shrubs, and perennials, shall receive specified stone over Dewitt Pro5 Weed Barrier. Stone shall be evenly spread on a carefully prepared grade free of weeds. The top of stone should be slightly below finish grade and concrete areas.
24. All deciduous trees shall be double staked per tree staking detail. It is the contractors responsibility to remove tree staking in a timely manner once staked trees have taken root. Deciduous tree ties to be V.I.T. Cinche Ties #CT32.
25. The contractor shall comply with all warranties and guarantees set forth by the Owner, and in no case shall that period be less than one year following the date of completion and final acceptance.

811 Know what's below. Call before you dig.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name: Client
20-108LS

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWAengineering.net

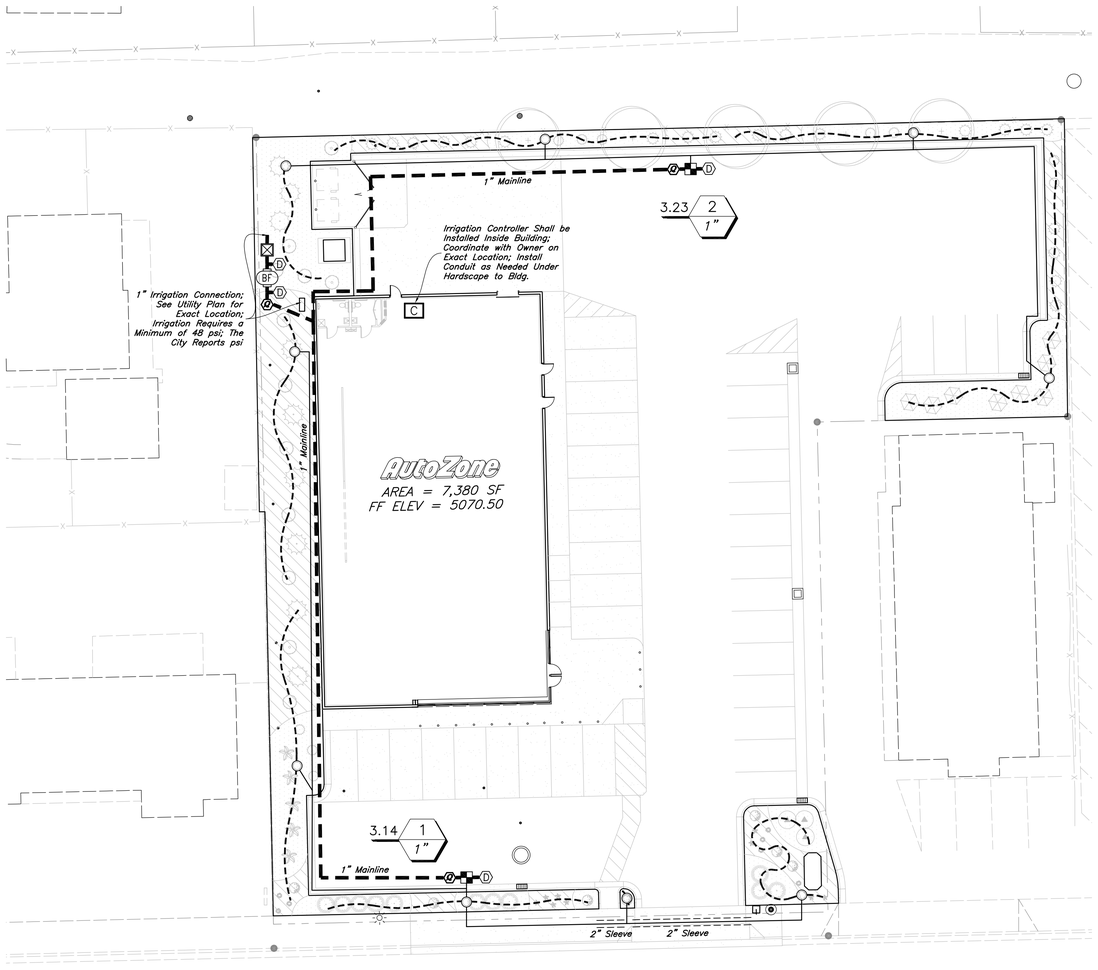
Landscape Plan

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

State of Utah
Jared R. Manscill
No. 7740426-5301
Licensed Landscape Architect

13 July, 2020

SHEET NO. L1.1



Irrigation Schedule

Symbol	Manufacturer/Model #	Description	Notes	Detail
Valves				
	Rain Bird XCZ-100-PRB-COM	Drip Remote Control Valve	1 Inch Size; Drip Control Zone Kit; Install in Standard Valve Box with 3" Depth of Gravel over Weed Barrier; Install with Water Proof Wire Connectors	9/L3.1
Q	Rain Bird 44RC	1 Inch Quick Coupler Valve with Swing Joint Assembly	Install in 10" Round Valve Box with 3" Depth of Gravel over Weed Barrier	7/L3.1
D	Matco-Norca 759	Manual Drain Valve	1/2" Inch Size; Install at End of Mainline in a 10" Round Valve Box with 6" Depth Sump of Gravel Over Weed Barrier	5/L3.1
Drip				
	PVC Pipe To Drip Tubing	Provide Connection Fittings	Install 1" Feeder Line To All Drip Areas	11/L3.1
	Netafim TLCV9-12XX	Techline CV Dripline with 0.9 gph Emitters @ 12" Spacing; Dripline Shall be Used to Water all Perennials, Shrubs, Ornamental Grasses and Trees; See Drip Irrigation Detail for Dripline Configuration and Layout; Blank Tubing Shall be Used in Areas Where There is No Plant Material; Install per Manufacturer's Specifications; Drip Shall be Installed After Plant Installation; Secure Tubing with Staples No Less Than Every 24 Inches & at Critical Holding Points; Tubing with Emitters Shall be Installed Under Weed Barrier so That the Water Drips on the Soil and not on Top of Weed Barrier		6&10/L3.1
P.O.C. Components				
	Mueller Oriseal Mark II	Stop & Waste Valve	1 Inch Size; Installed in 10" Round Valve Box with 3" Depth Gravel Over Weed Barrier	14/L3.1
BF	Wilkins 975XL Series	Reduce Pressure Backflow Assembly	1 Inch Size; Backflow shall be Properly Installed and Tested to Meet County Requirements, and Meet all State and Local Health Safety Laws and Ordinances; Install in GuardShack Enclosure (#GS-1) on Poured Concrete Pad with Frost Guard (FG-1) & 2 Locks (GS-AWPKA); Enclosure Color to be Woodsland Tan	13/L3.1
Pipes				
	Schedule 40 PVC	Mainline Pipe	1 Inch Size; Controller Wire Shall be Tucked Under Mainline; Sch 40 Fittings Shall be Used for Mainline Connections	8/L3.1
	Schedule 40 PVC	Lateral Line Pipe	See Plan for Pipe Sizes; Pipes Unmarked Shall be 1 Inch; Minimum Pipe Size Shall be 1 Inch for PVC Pipe; Sch 40 Fittings Shall be Used for Lateral Line Connections	8/L3.1
Controller				
C	Rain Bird ESP4ME3 Rain Bird LNK WiFi	4 Station Base Indoor Controller Wifi Link Module	See Plan for Location of Controller; Coordinate Power Supply With Building Electrical Contractor; Install Sensor on Corner of Shed Bldg. at Back Corner Out of Site	12/L3.1
Sleeving				
= = =	Schedule 40 PVC	Provide for Irr. Mainlines, Laterals and Controller Wire Located Under Concrete and Asphalt Paving at Specified Depths	Contractor Shall Coordinate the Installation of Sleeving with the Installation of Concrete Flatwork and Asphalt Paving. All Sleeving Shall be by the Landscape Contractor Unless Otherwise Noted.	15/L3.1

Valve Callout: # (Valve Number), # (Valve Flow), #" (Valve Size)

Scale: 1" = 20'

20' 0 20' 40'

General Irrigation Note

Main Service Line & Other Irrigation Components Are Shown In Paved Or Hardscape Surfaced For Clarity Purposes ONLY! Install All Irrigation Components within Landscaped Areas.

Irrigation Notes

1. See Sheet L1.1 for Plant Layout and Sheet L3.1 for Planting Details.
2. See Sheet L3.1 for Irrigation Details.
3. The City Reports psi in the Area.

VALVE SCHEDULE

VALVE STATION	VALVE SIZE	IRRIGATION TYPE	FLOW (GPM)	PSI	PSI @ POC	PRECIP. RATE
1	1"	Area for Drip Emitters	3.14	32.27	47.04	0.12 in/h
2	1"	Area for Drip Emitters	3.23	32.36	46.99	0.12 in/h

Irrigation Notes:

1. Prior to construction, the contractor shall be responsible for locating all underground utilities and shall avoid damage to all utilities during the course of the work. It shall be the responsibility of the contractor to protect all utility lines during the construction period, and repair any and all damage to utilities, structures, site appurtenances, etc. which occurs as a result of the landscape construction.
2. The irrigation contractor shall examine the site conditions under which the work is to be performed and notify the general contractor in writing of unsatisfactory conditions. Do not proceed until conditions have been corrected.
3. The contractor shall provide all materials, labor and equipment required for the proper completion of all irrigation work as specified and shown on the drawings.
4. See civil and architectural drawings for all structures, hardscape, grading, and drainage information.
5. Contractor safety and cleanup must meet OSHA standards at all times. All contractors must have adequate liability, personnel injury and property damage insurance. Clean-up must be performed daily, and all hardscape areas must be washed free of dirt and mud on final cleanup. Construction must occur in a timely manner.
6. The Owner/Landscape Architect has the right to reject any and all irrigation material not conforming to the plans and specifications.
7. The contractor shall install all irrigation material per plan, notes and details.
8. Irrigation system components must be premium quality only and installed to manufactures requirements and specifications. The contractor is responsible for checking state and local laws for all specified materials and workmanship. Substitutions must be approved by landscape architect. Provide owner and maintenance personnel with instruction manual and all products data to operate, check, winterize, repair, and adjust system.
9. Irrigation system guarantee for all materials and workmanship shall be one year from the time of store opening or final project acceptance (whichever is longer). Guarantee will include, but is not limited to winterizing, spring activation, repair, trench setting, backfilling depressions, and repairing freeze damage. Contractor must contact Landscape Architect to schedule pre and post guarantee inspection meetings. Failure to do so will mean the official guarantee period has not been activated or de-activated.
10. Irrigation system check must be done before the system is backfilled. Irrigation mainline and each control valve section must be flushed and pressure checked. Assure the complete system has no documented problems and full head to head coverage with adequate pressure for system operation. Adjust system to avoid spray on building, hardscape, and adjacent property. Any problems or plan discrepancies must be reported to the landscape architect.
11. Irrigation laterals must be schedule 40 P.V.C. with schedule 40 fittings. one (1) inch minimum size. Solvent weld all joints as per manufactures specifications for measured static p.s.i. Teflon tape all threaded fittings. The minimum depth of lateral lines shall be twelve (12) inches. Adapt system to manual compression air blowout.
12. Irrigation mainline that are 2" and smaller mainlines shall be schedule 40 PVC pipe with schedule 40 fittings. Solvent weld all joints as per manufactures specifications for measured static pressure. Use teflon tape on all threaded joints. Line depth must be eighteen (18) inches minimum.
13. Install dielectric fittings whenever dissimilar metals are joined.
14. Design locations are approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100(%) percent irrigation coverage of areas indicated.
15. Controller valves to be grouped together wherever possible. Install valve boxes with long side perpendicular to walk, curb, lawn, building or landscape features. Valve boxes to conform with finish grades.
16. Control valve wire shall be #14 single conductor: white for common wire, red for hot wire and blue for the spare wire. Provide (1) one spare wire that runs the length of the mainline and to the controller. All wiring shall be UF-UL rated. All connections shall be made with water tight connectors (DBR/Y or equivalent) and contained in control valve boxes. Provide 36" extra wire length at each remote control valve in valve box. Install control wiring with main service line where possible. Provide slack in control wires at all changes in direction.
17. Control valve size, type, quantity, and location to be approved by landscape architect. install in heavy duty plastic vandal proof box. Size boxes according to valve type and size for ease of maintenance and repair. Install one (1) cubic feet of pea gravel for sump in base of boxes. Boxes to be Carson Brooks or equal.
18. Quick couplers shall be a Rain Bird 44RC with a 1 inch Lasco unitized swing joint assembly. Support with rebar in each retainer lug. Install where shown on the plans.
19. Irrigation system backfill must occur only after system check is completed as specified. Use only rock free clean fill around pipes, valves, drains, or any irrigation system components. Water settle all trenches and excavations.
20. All irrigation pipe running through walls, under sidewalk, asphalt, or other hard surface shall be sleeved prior to paving. It is the irrigation contractors responsibility to coordinate sleeving with concrete and pavement contractors. Sleeves will be schedule 40 P.V.C. The depth for mainline sleeves shall be twenty-four (24) inches minimum. Depth for lateral sleeves shall be sixteen (16) inches minimum. Sleeves shall be a minimum of two sizes larger than the pipe to be sleeved. All valve wiring shall be contained in separate sleeving.
21. Plans are diagrammatic and approximate due to scale. where possible, all piping is to be installed within the planting areas. No tees, ells, or changes in direction shall occur under hardscape.
22. It is the contractors responsibility to verify all quantities based upon the plan prior to completion of a construction cost estimate.
23. The irrigation contractor shall flush and adjust all sprinkler heads for optimum performance and to prevent possible overspray onto walks, roadways, and/or buildings as much as possible. This shall include selecting the best degree of arc to fit the site and to throttle the flow control of each valve to obtain the optimum operating pressure for each system. All mainlines shall be flushed prior to the installation of irrigation heads.
24. All sprinkler heads shall be set perpendicular to finish grade of the areas to be irrigated and shall be installed 6-8" from buildings walls, or within 4" of pavement, curbs, or header edges.
25. Drip system piping shall consist of a rigid schedule 40 PVC pipe distribution system connecting drip irrigated planter areas. Poly tubing or drip line shall be run off the rigid PVC in each planting area or island with a PVC to poly tubing adapter. No poly tubing shall run under pavement.
26. Electrical power source at the controller location shall be provided by electrical contractor. Contractor shall verify location of controller prior to installation with owner.
27. Provide and install all manufacturer's recommended surge and lighting protection equipment on all controllers.
28. All lines shall slope to manual drains (see details). If field conditions necessitate additional drains, these drains shall be installed for complete drainage of the entire system. Provide a gravel sump under each drain. All drains shall be a minimum of 6" below grade.
29. Upon completion and approval of irrigation system, irrigation contractor to provide the owner with two sets of drawings indicating actual location of piping, valves, sprinkler heads, wiring, and zones.
30. An irrigation zone map shall be provided in a protective jacket and be kept with the main irrigation controller. The map shall show all approved irrigation and include all zone valve locations.
31. It shall be the responsibility of the sprinkler contractor to demonstrate to the Owner the proper winterization and start-up procedures for the entire system prior to final payment.

811 Know what's below. Call before you dig.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name: Client
20-108IR

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWAengineering.net

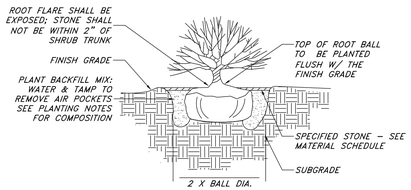
Irrigation Plan

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

State of Utah
Jared R. Manscill
No. 7740426-5301
Licensed Landscape Architect

13 July, 2020

SHEET NO.
L2.1

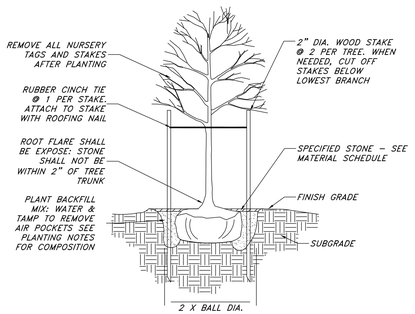


NOTE:

1. CUT AND REMOVE WIRE FROM TOP AND SIDES OF ROOTBALL. PEEL BACK BURLAP TO EXPOSE TOP 1/3 OF ROOTBALL.
2. REMOVE ALL NURSERY TAGS AND STACKS AFTER PLANTING.

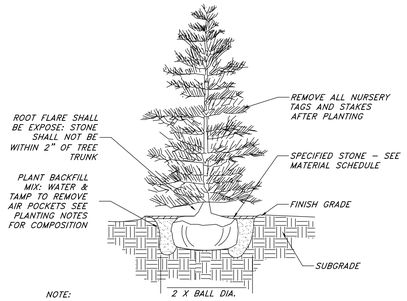
1 SHRUB PLANTING

Not to Scale



2 DECIDUOUS TREE PLANTING

Not to Scale

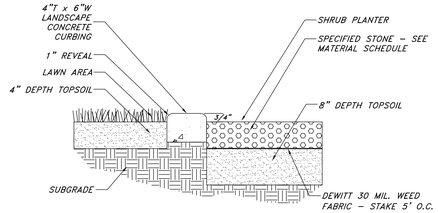


NOTE:

1. CUT AND REMOVE WIRE FROM TOP AND SIDES OF ROOTBALL. PEEL BACK BURLAP TO EXPOSE TOP 1/3 OF ROOTBALL.

3 EVERGREEEN TREE PLANTING

Not to Scale

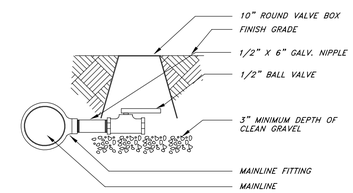


NOTE:

1. SMOOTH GRADE ENTIRE AREA PRIOR TO PLACEMENT OF CURBING AND SPECIFIED STONE.
2. CONTROL JOINTS SHALL BE PLACED AT 3' O.C.

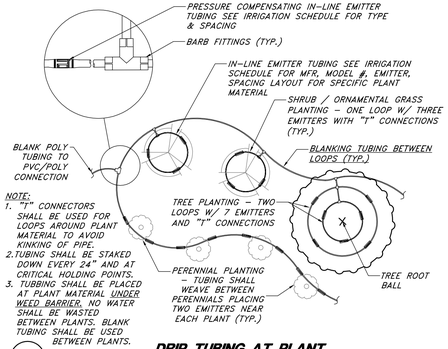
4 LANDSCAPE CONCRETE CURBING

Not to Scale



5 MANUAL DRAIN VALVE

NOT TO SCALE

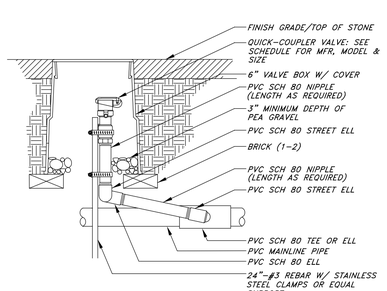


NOTE:

1. "T" CONNECTORS SHALL BE USED FOR LOOPS AROUND PLANT MATERIAL TO AVOID KINKING OF PIPE.
2. TUBING SHALL BE STAKED DOWN EVERY 24" AND AT CRITICAL HOLDING POINTS.
3. TUBING SHALL BE PLACED AT PLANT MATERIAL UNDER WEED BARRIER. NO WATER SHALL BE WASTED BETWEEN PLANTS. BLANK TUBING SHALL BE USED BETWEEN PLANTS.

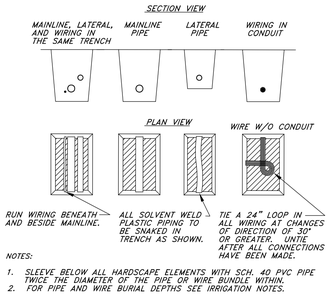
6 DRIP TUBING AT PLANT

Not to Scale



7 QUICK COUPLING VALVE

NOT TO SCALE

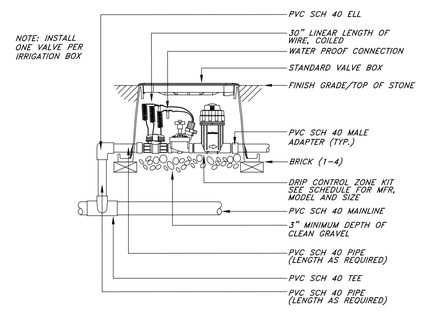


NOTES:

1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH SCH. 40 PVC PIPE TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.
2. FOR PIPE AND WIRE BURIAL DEPTHS SEE IRRIGATION NOTES.

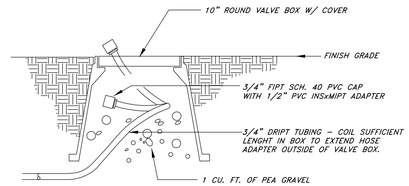
8 PIPE & WIRE TRENCHING

NOT TO SCALE



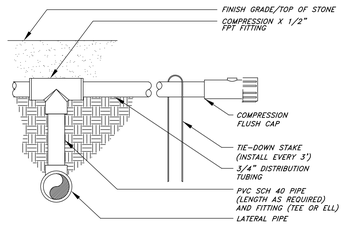
9 DRIP CONTROL VALVE

NOT TO SCALE



10 COMPRESSION FLUSH CAP

NOT TO SCALE

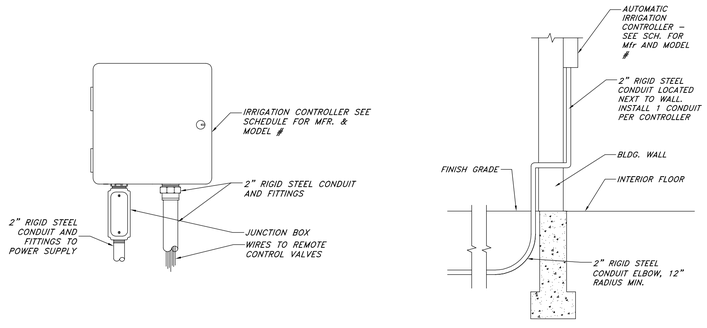


NOTE:

1. USE RAIN BIRD XERIMAN TOOL MODEL XM-TOOL TO INSERT EMITTER DIRECTLY INTO 3/4" DISTRIBUTION TUBING.

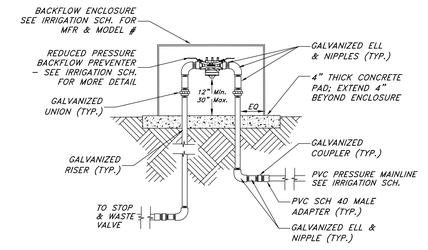
11 PVC TO POLY PIPE CONNECTION

NOT TO SCALE



12 IRR. CONTROLLER - INDOOR WALL MOUNT

Not to Scale

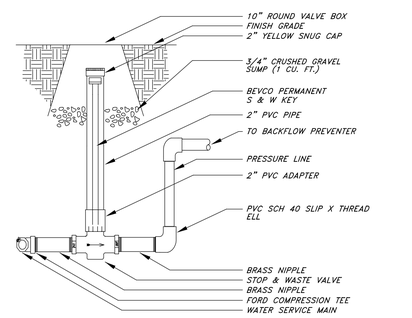


NOTE:

1. DIAMETER OF FITTINGS, NIPPLES AND RISERS SHALL BE EQUAL DIAMETER OF SPECIFIED BACK-FLOW PREVENTER UNLESS NOTED OTHERWISE.
2. ENCLOSURE SHALL BE BOLTED DOWN ON EACH CORNER.

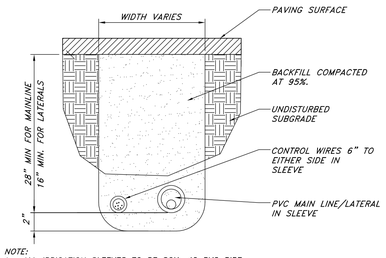
13 BACKFLOW PREVENTION DEVICE

NOT TO SCALE



14 STOP & WASTE VALVE

NOT TO SCALE



NOTE;

1. ALL IRRIGATION SLEEVES TO BE SCH. 40 PVC PIPE.
2. ALL SLEEVES SHALL BE TWICE THE NOMINAL SIZE OF THE PIPE WITHIN.
3. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
4. SLEEVE TO BE RUN UNDER PAVEMENT AND EXTEND A MIN. OF 18" PAST EDGE OF PAVEMENT. END OF SLEEVE TO BE CAPPED AND MARKED.

15 PIPE SLEEVING

Not to Scale

Know what's below. Call before you dig.

REV	DATE	DESCRIPTION

Designed by: CA
Drafted by: JG
Client Name:
Client
20-108IR

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 - AWAengineering.net

Landscape & Irrigation Details

AutoZone - Roosevelt
740 East 200 North
Roosevelt, Utah

State of Utah
Jared R. Manscill
No. 7740426-5301
Licensed Landscape Architect

13 July, 2020

SHEET NO.
L3.1

ALTA/ACSM LAND TITLE SURVEY

GAYATRI, LLC
PART OF LOT 10, BLOCK 4, ORSER SUBDIVISION
ROOSEVELT, UTAH 84006

A PART OF THE SW 1/4 OF THE SE 1/4 OF
SECTION 15, TOWNSHIP 2 SOUTH, RANGE 1 WEST, U.S.B.M.
DUCHESNE COUNTY, UTAH

FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER NCS-1011904-SLC1, DATED APRIL 28, 2020

SCHEDULE A

THE LAND IS DESCRIBED AS FOLLOWS: REAL PROPERTY IN THE COUNTY OF DUCHESNE, STATE OF UT, DESCRIBED AS FOLLOWS: TOWNSHIP 2 SOUTH, RANGE 1 WEST, UINTAH SPECIAL BASE AND MERIDIAN SECTION 15: BEGINNING AT A POINT 38 FEET NORTH AND 463 FEET EAST OF THE SOUTH QUARTER CORNER, THENCE NORTH 220 FEET; THENCE EAST 225 FEET; THENCE SOUTH 83 FEET; THENCE WEST 70 FEET; THENCE SOUTH 137 FEET; THENCE WEST 155 FEET TO THE POINT OF BEGINNING.

BEING PART OF LOT 10, BLOCK 4, ORSER SUBDIVISION, ROOSEVELT CITY SURVEY, ACCORDING TO THE OFFICIAL PLAT THEREOF ON FILE IN THE OFFICE OF THE RECORDER, DUCHESNE COUNTY, UTAH.

TOGETHER WITH AND SUBJECT TO AN EASEMENT OF INGRESS, EGRESS AND SHARED PARKING ACROSS AND UPON THE FOLLOWING DESCRIBED PARCEL OF LAND:PARKING LOT: BEGINNING 38 FEET NORTH AND 548 FEET EAST OF THE SOUTH QUARTER CORNER OF SECTION; THENCE NORTH 137 FEET; THENCE EAST 70 FEET; THENCE SOUTH 137 FEET; THENCE WEST 70 FEET TO THE POINT OF BEGINNING.

PARCEL NO: 00-0002-2354 / SERIAL NO: R-0696

REFERENCE

WARRANTY DEED - RECORDED #335297 07/02/1999
WARRANTY DEED - RECORDED #396025 06/11/2007
ROOSEVELT CITY OWNERSHIP PLAT, PAGE 15 - DATED 04/02/2018

CONTACT INFORMATION

BALLARD WATER DISTRICT - SEWER & CULINARY WATER - 435-722-3393
DOMINION ENERGY UTAH - GAS - 801-324-3165
MOON LAKE ELECTRIC ASSOCIATION - ELECTRIC - 435-823-7603
ROOSEVELT CITY - SEWER & CULINARY WATER - 435-823-7228
STRATA NETWORKS - FIBER OPTICS, PHONE & CATV - 435-622-5007
UTAH DEPARTMENT OF TRANSPORTATION, REGION 3 - 801-227-8000

TABLE A NOTES

7. (1) NO EXISTING BUILDINGS ON PROPERTY.

11. LOCATION OF EXISTING UTILITIES ON OR SERVICING THE SURVEYED PROPERTY AS DETERMINED BY:
OBSERVED EVIDENCE COLLECTED
MARKINGS REQUESTED BY THE SURVEYOR PURSUANT TO AN 811 UTILITY LOCATE
CONVERSATION WITH ROOSEVELT CITY PUBLIC WORKS

16. THERE IS NO EVIDENCE OF RECENT EARTH WORK OR CONSTRUCTION.

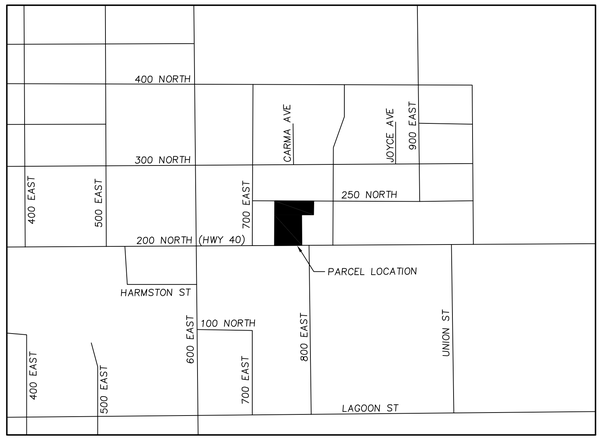
17. THERE IS NO PROPOSED CHANGES IN STREET RIGHT-OF-WAYS PER ROOSEVELT CITY AND THERE IS NO EVIDENCE OF STREET OR SIDEWALK CONSTRUCTION.

18. THERE IS NO WETLANDS MARKERS OBSERVED.

19. NO PLOTTABLE OFFSITE EASEMENTS OR SERVITUDES DISCLOSED OR OBTAINED.

VICINITY MAP

ROOSEVELT UTAH



SCHEDULE B

1. (a) TAXES OR ASSESSMENTS THAT ARE NOT SHOWN AS EXISTING LIENS BY THE RECORDS OF ANY TAXING AUTHORITY THAT LEVIES TAXES OR ASSESSMENTS ON REAL PROPERTY OR BY THE PUBLIC RECORDS; (b) PROCEEDINGS BY A PUBLIC AGENCY THAT MAY RESULT IN TAXES OR ASSESSMENTS, OR NOTICES OF SUCH PROCEEDINGS, WHETHER OR NOT SHOWN BY THE RECORDS OF SUCH AGENCY OR BY THE PUBLIC RECORDS.

2. ANY FACTS, RIGHTS, INTEREST OR CLAIMS THAT ARE NOT SHOWN BY THE PUBLIC RECORDS BUT THAT COULD BE ASCERTAINED BY AN INSPECTION OF THE LAND OR THAT MAY BE ASSERTED BY PERSONS IN POSSESSION OF THE LAND.

3. EASEMENTS, LIENS OR ENCUMBRANCES OR CLAIMS THEREOF, NOT SHOWN BY THE PUBLIC RECORD.

4. ANY ENCROACHMENT, ENCUMBRANCE, VIOLATION, VARIATION, OR ADVERSE CIRCUMSTANCE AFFECTING THE TITLE INCLUDING DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, OR ANY OTHER FACTS THAT WOULD BE DISCLOSED BY AN ACCURATE AND COMPLETE LAND SURVEY OF THE LAND, AND NOT SHOWN IN THE PUBLIC RECORDS.

5. (a) UNPATENTED MINING CLAIMS; (b) RESERVATIONS OR EXCEPTIONS IN PATENTS OR IN ACTS AUTHORIZING THE ISSUANCE THEREOF; (b) WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT THE MATTERS EXCEPTED UNDER (a), (b), OR (c) ARE SHOWN BY THE PUBLIC RECORD.

6. ANY LIEN, OR RIGHT TO A LIEN, FOR SERVICES, LABOR OR MATERIAL THERETOFORE OR HEREAFTER FURNISHED, IMPOSED BY LAW AND NOT SHOWN IN THE PUBLIC RECORDS.

7. ANY DEFECT, LIEN, ENCUMBRANCE, ADVERSE CLAIM, OR OTHER MATTER THAT APPEARS FOR THE FIRST TIME IN THE PUBLIC RECORDS OR IS CREATED, ATTACHES, OR IS DISCLOSED BETWEEN THE COMMITMENT DATE AND THE DATE ON WHICH ALL OF THE SCHEDULE B, PART I-REQUIREMENTS ARE MET.

8. TAXES FOR THE YEAR 2020 ARE A LIEN NOT YET DUE.
(TAXES FOR THE YEAR 2019 HAVE BEEN PAID IN THE AMOUNT OF $3,277.92.)
PARCEL NO: 00-0002-2354 / SERIAL NO: R-0696

9. THIS PROPERTY IS WITHIN THE BOUNDARIES OF DUCHESNE COUNTY AND THE CENTRAL UTAH WATER CONSERVANCY DISTRICT AND THE DUCHESNE COUNTY WATER CONSERVANCY DISTRICT AND ROOSEVELT CITY WATER DISTRICT AND IS SUBJECT TO ALL CHARGES AND ASSESSMENTS LEVIED THEREBY. (LEVIED WITH GENERAL PROPERTY TAXES.)

10. ANY CLAIM TO (a) OWNERSHIP OF OR RIGHTS TO MINERALS AND SIMILAR SUBSTANCES, INCLUDING BUT NOT LIMITED TO ORES, METALS, COAL, LIGNITE, OIL, GAS, URANIUM, CLAY, ROCK, SAND, AND GRAVEL LOCATED IN, ON, OR UNDER THE LAND OR PRODUCED FROM THE LAND, WHETHER SUCH OWNERSHIP OR RIGHTS ARISE BY LEASE, GRANT, EXCEPTION, CONVEYANCE, RESERVATION, OR OTHERWISE; AND (b) ANY RIGHTS, PRIVILEGES, IMMUNITIES, RIGHTS OF WAY, AND EASEMENTS ASSOCIATED THEREWITH OR APPURTENANT THERETO, WHETHER OR NOT THE INTERESTS OR RIGHTS EXCEPTED IN (a) OR (b) APPEAR IN THE PUBLIC RECORDS OR ARE SHOWN IN SCHEDULE B.

11. TAXES AND ASSESSMENTS IMPOSED BY THE UTE INDIAN TRIBE.

12. RIGHTS-OF-WAY AND EASEMENTS FOR DITCHES AND CANALS RESERVED BY THE UNITED STATES OF AMERICA, AS RECITED IN THAT CERTAIN PATENT, ENTRY NO. 23834, RECORDED APRIL 16, 1912, IN BOOK 2 OF PATENTS, PAGE 248, RECORDS OF DUCHESNE COUNTY, UTAH.

13. EASEMENT TO USE IRRIGATION SYSTEM IN FAVOR OF UTAH WATER AND POWER BOARD, DATED OCTOBER 3, 1952 AND RECORDED NOVEMBER 13, 1952 AS ENTRY NO. 95443 IN BOOK 26 PAGES 60-61, RECORDS OF DUCHESNE COUNTY, UTAH.
BLANKET EASEMENT FOR CANAL - DOES NOT AFFECT PARCEL

14. TRANSFER/CONVEYANCE/ASSIGNMENT OF EASEMENT TO USE IRRIGATION SYSTEM IN FAVOR OF DRY GULCH IRRIGATION COMPANY, DATED MARCH 29, 1963 AND RECORDED APRIL 30, 1963 AS ENTRY NO. 128761 IN BOOK 17 PAGES 563-567, RECORDS OF DUCHESNE COUNTY, UTAH.
BLANKET EASEMENT FOR CANAL - DOES NOT AFFECT PARCEL

15. EASEMENT TO USE IRRIGATION SYSTEM, IN FAVOR OF UTAH WATER AND POWER BOARD, DATED JULY 2, 1963 AND RECORDED JULY 13, 1964 AS ENTRY NO. 133882 IN BOOK 36 PAGE 591, RECORDS OF DUCHESNE COUNTY, UTAH.
BLANKET EASEMENT FOR CANAL - DOES NOT AFFECT PARCEL

16. RIGHT-OF-WAY DATED MARCH 31, 1964, CREATED FOR UTAH POWER AND LIGHT, RECORDED FEBRUARY 15, 1968, AS ENTRY NO. 145567, IN BOOK A-5, PAGE 319, RECORDS OF DUCHESNE COUNTY, UTAH.
BLANKET EASEMENT OVER SW 1/4 OF SE 1/4 SEC. 15, T2S, R1W - NOT PLOTTABLE

17. TRANSFER/CONVEYANCE OF EASEMENT TO USE IRRIGATION SYSTEM IN FAVOR OF MOON LAKE WATER USERS, DATED DECEMBER 2, 1985 AND RECORDED DECEMBER 13, 1985 AS ENTRY NO. 250595 IN BOOK A-137 PAGES 639640, RECORDS OF DUCHESNE COUNTY, UTAH.
BLANKET EASEMENT FOR CANAL - DOES NOT AFFECT PARCEL

18. ORDINANCE NO. 15-345 DATED OCTOBER 26, 2015, FOR THE PURPOSE OF CREATING THE PUBLIC LAND PRESERVATION FUND, AND RECORDED FEBRUARY 3, 2016, AS ENTRY NO. 491453, RECORDS OF DUCHESNE COUNTY, UTAH.
COUNTY ORDINANCE - NOT PLOTTABLE

19. THE STATE CONSTRUCTION REGISTRY DISCLOSES THE FOLLOWING PRELIMINARY NOTICE(S): (NOT CHECKED AT THIS TIME)

PRINTED 6/4/20 FOR DATE
- ☐ PRELIMINARY
- ☐ DESIGN DEVELOPMENT
- ☐ BIDDING
- ☐ CONSTRUCTION
- ☒ APPROVAL
- ☐ AS BUILT
- ☐ REVISION

COOK SURVEYING & ASSOCIATES
PHONE: (801) 364-4051

No.	DESCRIPTION	BY	DATE	APPD.
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–

REVISIONS

TITLE: **ROOSEVELT, UTAH STORE # 3600**
ALTA/ACSM LAND TITLE SURVEY
COVER SHEET

Drawn By: SRH	Date 5/20	SURV. TDC	Date 5/20	DRAWING No.	REVISION
Chk'd. By: KAC	Date 5/20	APPD. –	Date –	**1 OF 2**	**0**
Project No. 20-05-118		SCALE AS NOTED			

ALTA/ACSM LAND TITLE SURVEY

GAYATRI, LLC
PART OF LOT 10, BLOCK 4, ORSER SUBDIVISION
ROOSEVELT, UTAH 84006

A PART OF THE SW 1/4 OF THE SE 1/4 OF
SECTION 15, TOWNSHIP 2 SOUTH, RANGE 1 WEST, U.S.B.M.
DUCHESNE COUNTY, UTAH

FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER NCS-1011904-SLC1, DATED APRIL 28, 2020

N
W E
S

0' 10' 20' 40'
SCALE: 1"=20'

LEGEND

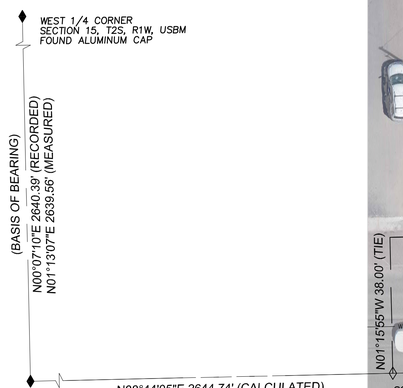
- PROPERTY LINE
- PREFERRED SETBACK LINE
- ADJOINING LOT LINE
- SECTION LINE
- ROAD CENTER LINE
- FENCE LINE
- EXISTING ELECTRICAL
- EXISTING FIBER
- EXISTING GAS
- EXISTING SEWER
- EXISTING STORM DRAIN
- EXISTING WATER
- INGRESS, EGRESS AND PARKING EASEMENT
- SEWER MANHOLE
- WATER METER
- LIGHT POLE
- BORE HOLE LOCATION
- ELECTRICAL BOX
- FIBER BOX
- ELECTRICAL POLE
- FIRE HYDRANT

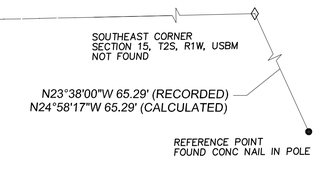
TITLE INFORMATION

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. ALL INFORMATION REGARDING RECORD EASEMENTS, ADJOINERS AND OTHER DOCUMENTS THAT MIGHT AFFECT THE QUALITY OF TITLE TO TRACT SHOWN HEREON WAS GAINED FROM TITLE COMMITMENT NUMBER NCS-1011904-SLC1, DATED APRIL 28, 2020 PREPARED BY FIRST AMERICAN TITLE INSURANCE COMPANY.

FLOOD ZONE

FEMA HAS NOT COMPLETED A STUDY TO DETERMINE FLOOD HAZARD FOR THE SELECTED LOCATION; THEREFORE, A FLOOD MAP HAS NOT BEEN PUBLISHED AT THIS TIME.





UTILITY NOTES

1.WATER MAINLINE RUNS ALONG THE SOUTH SIDE OF 200 NORTH STREET.

2. GAS MAINLINE RUNS ALONG THE SOUTH SIDE OF 200 NORTH STREET.

3. STORM DRAIN MAINLINE RUNS ALONG THE SOUTH SIDE OF 200 NORTH STREET WITH INLETS LOCATED IN THE INTERSECTIONS TO THE EAST AND WEST OF PARCEL.

4. SEWER LINE DEPTH WAS NOT ACCESSIBLE DUE TO MANHOLE LIDS BEING STUCK IN PLACE AND NO RECORDED INFORMATION FROM ROOSEVELT CITY.

PARKING

10 - REGULAR SPACES
0 - DISABLED SPACES
0 - MOTORCYCLE SPACES

ZONING

C (COMMERCIAL)

LEGAL DESCRIPTION

LOCATED WITHIN THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 15, TOWNSHIP 20 SOUTH, RANGE 1 WEST, UINTAH SPECIAL BASE AND MERIDIAN, SAID PARCEL BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT AN ALUMINUM CAP, MARKING THE SOUTHWEST CORNER OF SAID SECTION 15, TOWNSHIP 2 SOUTH, RANGE 11 WEST, USBM; THENCE N 88°44'05" E, 2644.74 FEET TO THE SOUTH QUARTER CORNER OF SAID SECTION 15 (MONUMENT NOT FOUND); THENCE N 01°15'55" W, 38.00 FEET; THENCE N 88°44'05" E, 463.00 FEET TO THE SOUTHWESTERLY CORNER OF PARCEL AND THE **POINT OF BEGINNING**;

THENCE N 01°15'55" W, 220.00 FEET TO AN ALUMINUM CAP;
THENCE N 88°44'05" E, 225.00 FEET TO AN ALUMINUM CAP;
THENCE S 01°15'55" E, 83.00 FEET TO AN ALUMINUM CAP;
THENCE S 88°44'05" W, 70.00 FEET TO AN NAIL IN ASPHALT;
THENCE S 01°15'55" E, 137.00 FEET TO THE SOUTHEASTERLY CORNER OF PARCEL;
THENCE S 88°44'05" W, 155.00 FEET TO THE **POINT OF BEGINNING**.

SUBJECT TO AN EASEMENT FOR INGRESS, EGRESS AND SHARED PARKING ACROSS AND UPON THE FOLLOWING DESCRIBED PARCEL OF LAND/PARKING LOT:

BEGINNING AT SAID SOUTH QUARTER CORNER THENCE THENCE N 01°15'55" W, 38.00 FEET; THENCE N 88°44'05" E, 548.00 FEET TO THE **POINT OF BEGINNING**;

THENCE N 01°15'55" W, 137.00 FEET TO AN ALUMINUM CAP;
THENCE N 88°44'05" E, 70.00 FEET TO AN ALUMINUM CAP;
THENCE S 01°15'55" E, 137.00 FEET TO AN ALUMINUM CAP;
THENCE S 88°44'05" W, 70.00 FEET TO THE **POINT OF BEGINNING**.

SAID PARCEL CONTAINS 39,910 SQUARE FEET OR 0.92 ACRES MORE OR LESS

SETBACK REQUIREMENTS

17.20.080 YARD REGULATIONS

A. FRONT YARD SETBACKS MAY BE REQUIRED BY THE PLANNING AND ZONING COMMISSION IN THE SITE PLAN REVIEW AND APPROVAL PROCESS.

B. A SIDE YARD SETBACK OF NOT LESS THAN FIFTEEN (15) FEET SHALL BE REQUIRED WHERE ADJOINING A RESIDENTIAL ZONE, SCHOOL OR PARK.

C. NO REAR YARDS ARE REQUIRED EXCEPT AS MAY BE DICTATED BY OFF-STREET PARKING REQUIREMENTS OR BY THE PROVISIONS OF THE INTERNATIONAL BUILDING CODE AS ADOPTED BY ROOSEVELT CITY. (ORD. 2011-366 § 1 (PART))

NOTE:

PER ZONING DIRECTOR A 30' FRONT AND 10'-15' SIDE SETBACK ARE PREFERRED.

SURVEYOR NOTES

1.THE LOCATIONS OF UTILITIES AS SHOWN HEREON ARE BASED ON ABOVEGROUND APPURTENANCES, UTILITY LOCATION MARKINGS AND RECORDED EASEMENT DOCUMENTS. UTILITY COMPANY MAPS WERE NOT USED TO DETERMINE UNDERGROUND LOCATIONS. LOCATIONS OF UNDERGROUND UTILITIES MAY VARY FROM LOCATIONS SHOWN HEREON AND ADDITIONAL BURIED UTILITIES MAY BE ENCOUNTERED, NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES. NAMED PARTIES AND ASSOCIATES SHOULD CONTACT THE APPROPRIATE UTILITY AGENCIE(S) FOR ACTUAL FIELD LOCATIONS.

2. THE LOCATION AND / OR EXISTENCE OF UTILITY SERVICE LINES TO OR ON THE PROPERTY SURVEYED ARE UNKNOWN AND ARE NOT SHOWN ON THIS PLAT.

3. THIS MAP MAKES NO ASSUMPTIONS AS TO ANY UNWRITTEN RIGHTS THAT MAY EXIST BY AND BETWEEN THE ADJOINING LANDOWNERS.

CERTIFICATION

TO GAYATRI, LLC AND/OR ASSIGNS AND FIRST AMERICAN TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY MADE ON MAY 14, 2020, ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 3, 4, 5, 7, 8, 9, 11, 13, 16, 17, 18, 19, 20, 21 OF TABLE A THEREOF.

DATE OF PLAT OR MAP: 6-3-2020

(SIGNED) _____

PRINTED 6/4/20 FOR DATE
- ☐ PRELIMINARY
- ☐ DESIGN DEVELOPMENT
- ☐ BIDDING
- ☐ CONSTRUCTION
- ☒ APPROVAL
- ☐ AS BUILT
- ☐ REVISION

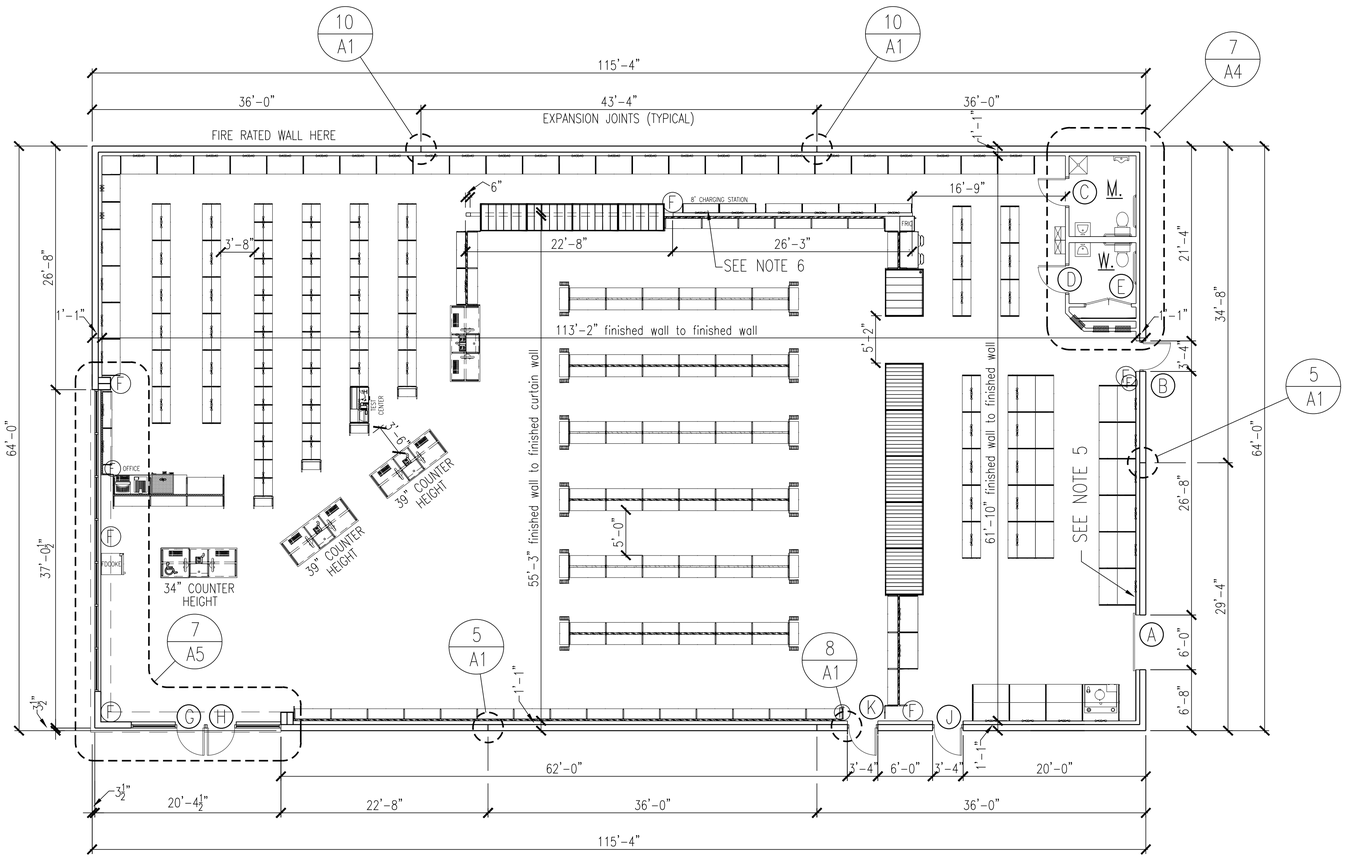
COOK SURVEYING & ASSOCIATES
PHONE: (801) 364-4051

REVISIONS

TITLE
ROOSEVELT, UTAH STORE # 3600
ALTA/ACSM LAND TITLE SURVEY
BOUNDARY & EXISTING FEATURES

Drawn By: SRH	Date 5/20	SURV. TDC	Date 5/20	DRAWING No. 2 OF 2	REVISION 0
Chk'd. By: KAC	Date 5/20	APPD. —	Date —		
Project No. 20-05-118		SCALE AS NOTED			

Front of Building



NOTE: Ⓕ = NEW DRY CHEMICAL FIRE EXTINGUISHER. GENERAL CONTRACTOR TO INSTALL ONE KIDDE 10 lb #46620420 AT BATTERY CHARGING AND KIDDE 5 lb #FC-340M-VB AT ALL OTHER LOCATIONS. INSTALL EITHER ON WALL SURFACE, FIXTURE UPRIGHT OR ALUMINUM MULLION. MOUNTING HEIGHT = 3'-6" ABOVE FINISHED FLOOR TO TOP OF EXTINGUISHER.

1/8" = 1'-0"

1 FLOOR PLAN

1. REFER TO STRUCTURAL DRAWINGS FOR ALL DETAILS AND REQUIREMENTS REGARDING FOUNDATIONS, WALL REINFORCING, BOND BEAMS, LINTELS, AND ROOF FRAMING.
2. REFER TO CIVIL DRAWINGS FOR LOCATIONS AND DETAILS OF SIDEWALKS, PIPE GUARDS, ETC., AS WELL AS FINISH FLOOR ELEVATION AND EXTERIOR FINISHED GRADES AROUND THE BUILDING.
3. INSTALL 6" WIDE, 20 GAUGE GALVANIZED SHEET METAL STRIP BETWEEN THE BACK OF THE GYPSUM BOARD AND THE FACE OF THE METAL STUD AROUND THE ENTIRE PERIMETER OF THE BUILDING, AS WELL AS BOTH SIDES OF THE CURTAIN WALL. TOP OF STRIP TO BE 93" ABOVE FINISHED FLOOR. REFER TO SHEET A-4 FOR DETAILS OF CURTAIN WALL.
4. SEE SHEET M-2 FOR LOCATION OF NON FREEZE YARD HYDRANT AND INSTALLATION REQUIREMENTS.
5. INSTALL 1/2" X 4'-0" X 8'-0" AC PLYWOOD HORIZONTALLY WITH THE LONG EDGE ON THE FLOOR AND THE END JOINT CENTERING ON A STUD. APPLY PLYWOOD TO THE FACE OF GYPSUM BOARD WITH SCREWS TO FACILITATE FUTURE REPLACEMENT. SEE INTERIOR ELEVATIONS SEE 3/A4 DETAIL.
6. SEE SPECIFICATIONS FOR INFORMATION ON ITEMS NOT COMPLETELY DELINEATED ON THE DRAWINGS.

1/8" = 1'-0" AFN01

2 FLOOR PLAN NOTES

LOCATION	FLOOR		BASE		WALLS		CLG.		REM.
	SEALED CONCRETE	VINYL TILE	VINYL	QUARRY TILE	GYPSUM BOARD	FIBER REINFORCED PANELS	METAL DECK	GYPSUM BOARD	
SALES AREA		●	●		●		●		
REST ROOMS	●		●			●		●	

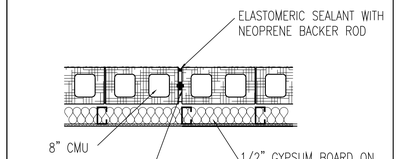
3/16" = 1'-0" AFC01

3 ROOM FINISH SCHEDULE

MK	SIZE	TYPE	FRAME	JAMB DETAIL	HEAD DETAIL	ADA / EXIT HARDWARE (SEE SECTION 08700 OF THE SPECIFICATIONS)
A	6'-0" x 8'-0"	STEEL OVERHEAD ROLL-UP	STEEL ANGLE	6;7&8/A1	6&7/A1	
B	3'-0" x 7'-0" x 1-3/4"	HOLLOW METAL	HOLLOW METAL	8/A1	8/A1	PUSH BAR EXIT DEVICE WILL HAVE AN INTEGRAL SOUNDER
C	3'-0" x 6'-8" x 1-3/4"	SOLID CORE WOOD UNDERCUT DOOR 1"	HOLLOW METAL	8/A1	8/A1	LEVER HANDLE PRIVACY SETS
D	3'-0" x 6'-8" x 1-3/4"	SOLID CORE WOOD UNDERCUT DOOR 1"	HOLLOW METAL	8/A1	8/A1	LEVER HANDLE PRIVACY SETS
E	2'-6" x 6'-8" x 1-3/4"	SOLID CORE WOOD PAIR REQUIRED	HOLLOW METAL	8/A1	8/A1	UNDERCUT DOOR 1" (PAIR REQUIRED)
G	3'-0" x 7'-0" x 1-3/4"	GLASS & ALUMINUM SEE SHEET A-5	ALUMINUM	SEE MANUFACTURER'S SHOP DRAWINGS		
H	3'-0" x 7'-0" x 1-3/4"	GLASS & ALUMINUM SEE SHEET A-5	ALUMINUM	SEE MANUFACTURER'S SHOP DRAWINGS		
J	3'-0" x 7'-0" x 1-3/4"	HOLLOW METAL	HOLLOW METAL	8/A1	8/A1	PUSH BAR EXIT DEVICE
K	3'-0" x 7'-0" x 1-3/4"	HOLLOW METAL	HOLLOW METAL	8/A1	8/A1	PUSH BAR EXIT DEVICE
L	3'-0" x 7'-0" x 1-3/4"	HOLLOW METAL	HOLLOW METAL	8/A1	8/A1	LEVER HANDLE PRIVACY SETS

3/32" = 1'-0" ADC01

4 DOOR SCHEDULE – HOLLOW METAL DOORS & FRAMES

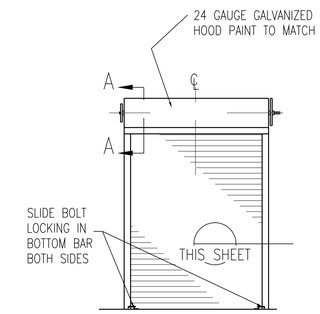


NOTE: SEE STRUCTURAL DRAWINGS FOR REINFORCING REQUIREMENTS

3/4" = 1'-0" AFS01

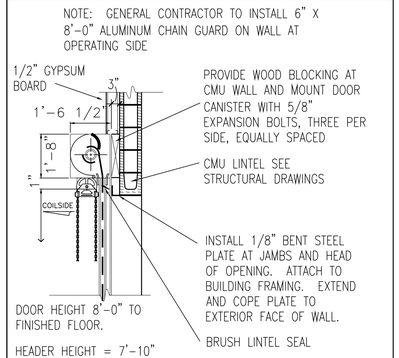
5 EXPANSION JOINT DETAIL

CHAIN OPERATED INSULATED DOOR SURFACE MOUNTED



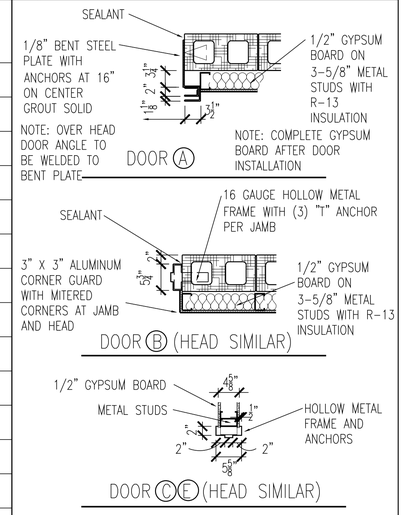
6 OVERHEAD DOOR ELEVATION

NOTE: GENERAL CONTRACTOR TO INSTALL 6" X 8'-0" ALUMINUM CHAIN GUARD ON WALL AT OPERATING SIDE



5/16" = 1'-0" ADS01

7 OVERHEAD DELIVERY DOOR Ⓐ



3/4" = 1'-0" ADS02

8 JAMB DETAILS

REVISIONS			
1	10-11-19	4	
2		5	
3		6	

AutoZone Store No. 3600
740 E. 200 NORTH
ROOSEVELT
UT

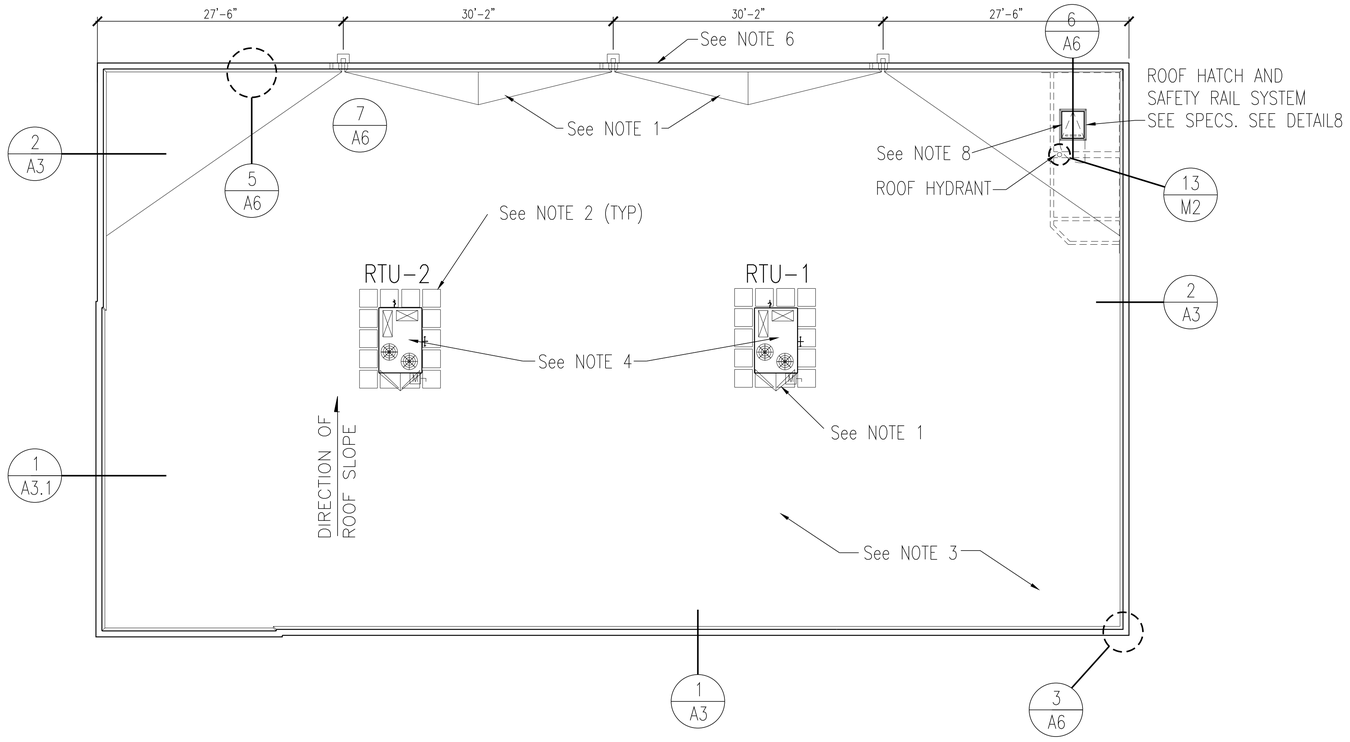
FLOOR PLAN / DOOR SCHEDULE / WALL DETAILS

Architect: Lew Ellis
123 South Front Street
Memphis, Tennessee 38103
TEL: 901-495-8707 FAX: (901) 495-8969
For Bidding & Contractor Information Contact:
McGraw - Hill Construction Tel. 615-884-1017
www.construction.com

07-14-20

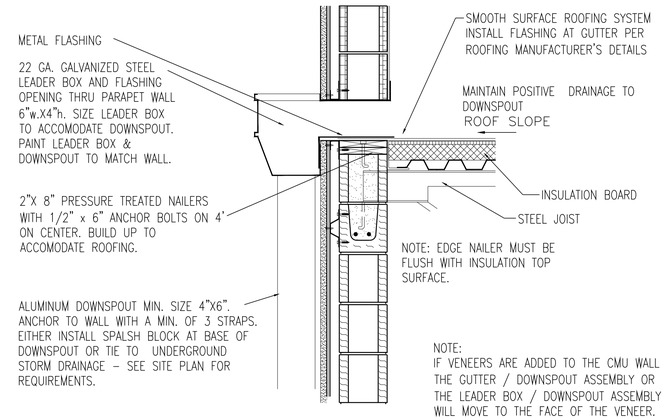
7N2-L

A-1



1/8" = 1'-0"

ROOF PLAN



1" = 1'-0" ARS01

7 ROOF EDGE DETAIL AT LOW SIDE

1. ALL CRICKETS TO BE 3" HIGH AT THE CENTER AND LOCATED AT THE HIGH SIDE OF ANY ROOF OPENING. SLOPE DOWNWARD TO EDGE OF ROOF OPENINGS OR DRAINS.
2. ALL ROOF WALKPADS (24" X 24") ARE TO BE WITHIN 2" OF THE VERTICAL FACES OF THE ROOFTOP UNIT. SPACING BETWEEN THE PADS IS TO BE 6".
3. REFER TO SPECIFICATIONS FOR SMOOTH SURFACE ROOFING SYSTEM, PROVIDE CONTINUOUS 4" FIBER CANT STRIP AT VERTICAL INTERSECTIONS IF REQUIRED BY ROOFING SYSTEM.
4. REFER TO STRUCTURAL DRAWINGS FOR ROOF FRAMING PLAN TO DETERMINE LOCATION OF ROOF TOP UNITS (RTU).
5. HVAC ROOF CURBS SHALL BE FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL PROVIDE ALL FLASHING.
6. INTERNAL ROOF DRAINS OR GALVANIZED LEADER BOX WITH DOWNSPOUT AND ADJACENT OVERFLOW OPENING THRU WALL. SEE PLAN AND BUILDING EXTERIOR ELEVATIONS. SEE DETAIL 3 THIS SHEET FOR ROOF DRAIN AND PIPING DESIGN AND REQUIREMENTS. LEADER BOX AND OVERFLOW OPENINGS SHALL BE 6" WIDE AND 4"HIGH AND OVERFLOW OPENINGS SHALL BE LOCATED SO THAT THE BOTTOM OF THE OPENING IS 2" ABOVE THE ROOF SURFACE.
7. CONNECT DOWNSPOUTS OR ROOF DRAIN LEADERS TO UNDERGROUND DRAINAGE SYSTEM OR IF NONE AVAILABLE, PROVIDE SPLASH BLOCKS WITH POSITIVE DRAINAGE AWAY FROM BUILDING.
8. ROOF HATCH WITH LADDER BELOW.

1/4" = 1'-0" ARN01

2 ROOF PLAN NOTES

ROOF SLOPE = 3 PERCENT

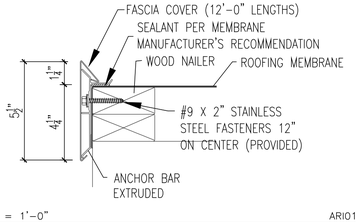
DESIGN RAINFALL = 4.5 INCHES PER HOUR = .0468 GPM

TOTAL ROOF AREA = 7381 SQ. FT. = 345 GPM

ROOF IS DIVIDED INTO THREE AREAS OF 2460 S.F. = 115 GPM EA. 4" ROOF DRAIN HAS A CAPACITY OF 192 GPM = 576 GPM TOTAL HORIZONTAL PIPING BETWEEN RD#1 AND RD#2 TO BE 4" DIA. @ $\frac{1}{8}$" PER FT. CAPACITY 115 GPM; PIPING BETWEEN RD#2 AND RD#3 TO BE 6" DIA. @ $\frac{1}{16}$" PER FT. CAPACITY 243 GPM; PIPING BETWEEN RD#3 AND THE VERTICAL LEADER TO BE 6" DIA. @ $\frac{1}{8}$" PER FT. CAPACITY 344 GPM. 6" VERTICAL LEADER CAPACITY 563 GPM. OVERFLOW SYSTEM TO BE SIZED THE SAME AS THE PRIMARY WITH THE FLOW LINE OF THE OVERFLOW DRAINS SET 2" ABOVE THE PRIMARY.

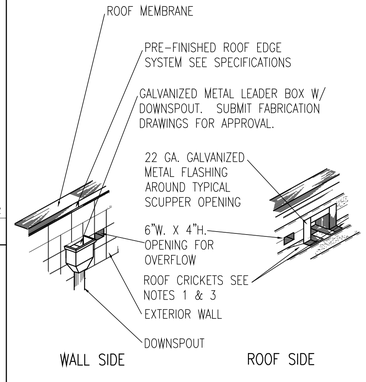
1/2" = 1'-0" ARN27N2

3 RAINWATER CALCULATIONS



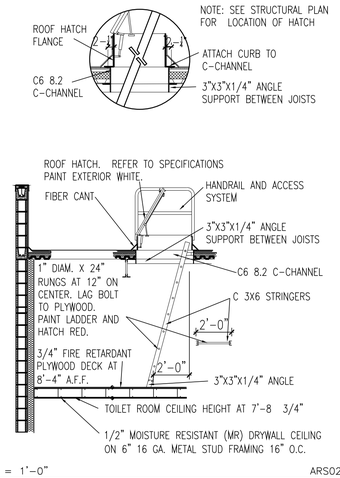
3" = 1'-0" ARI01

4 ROOF EDGE DETAIL



3/8" = 1'-0" ARI03

5 ROOF AT GUTTER



1/4" = 1'-0" ARS02

6 ROOF HATCH DETAIL

REVISIONS

1	2	3
4	5	6

AutoZone Store No. 3600
740 E. 200 NORTH
ROOSEVELT UT

ROOF PLAN / DETAILS

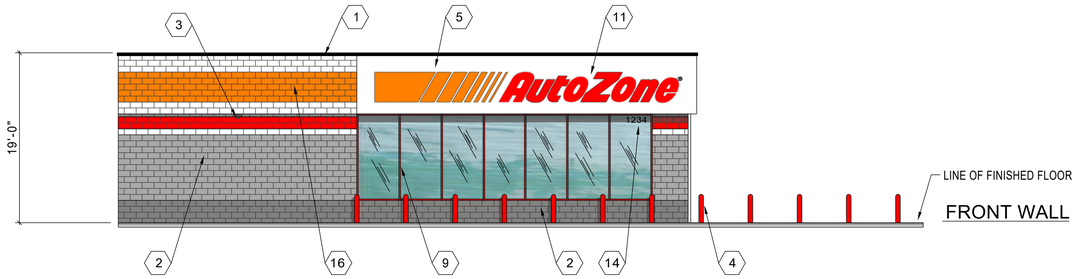
Architect: Lew Ellis
123 South Front Street
Memphis, Tennessee 38103
TEL: 901-495-8707 FAX: (901) 495-8969

For Bidding & Contractor Information Contact:
Dodge Data & Analytics, Tel. 413-930-4215
Cindy.searcy@construction.com

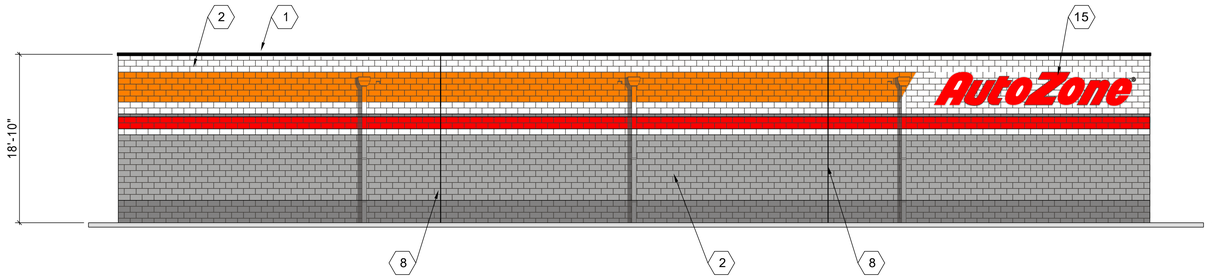
07-14-20

7N2-L

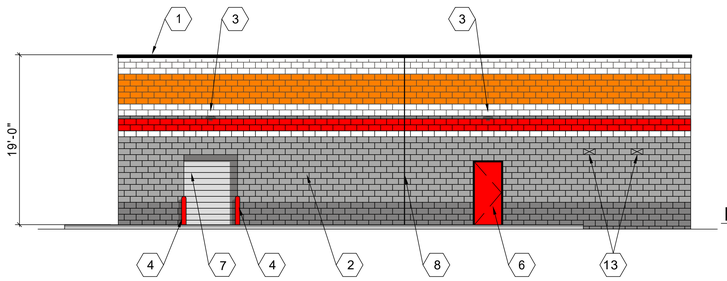
A-6



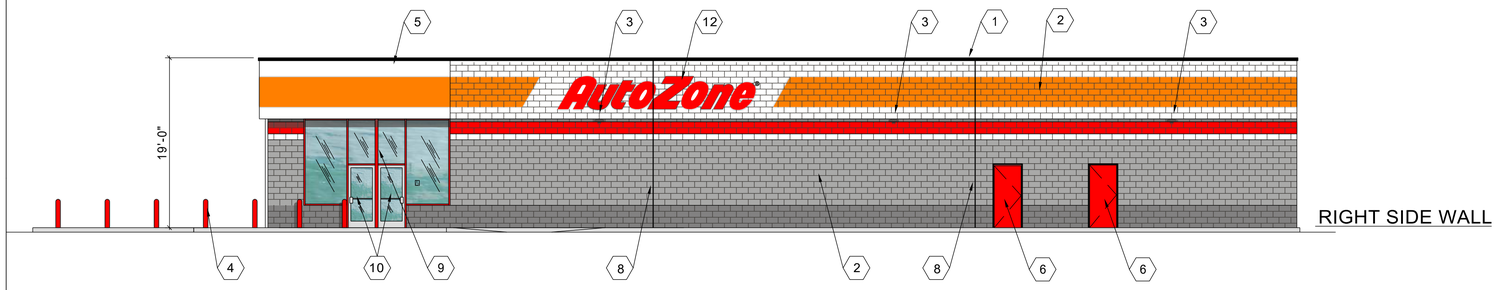
FRONT WALL



LEFT SIDE WALL
(LOW SIDE)



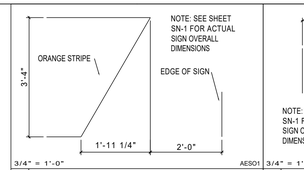
REAR WALL



RIGHT SIDE WALL

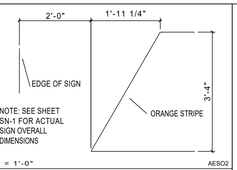
1/8" = 1'-0"

1 EXTERIOR ELEVATIONS



3/4" = 1'-0" AES01

6 ORANGE STRIPE TERMINATION



3/4" = 1'-0" AES02

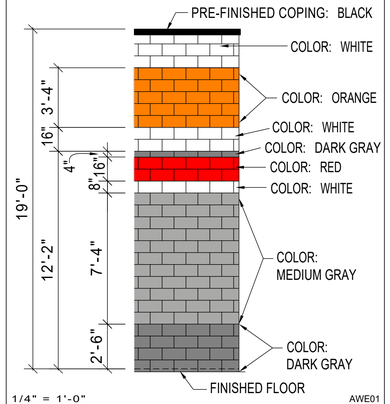
7 ORANGE STRIPE TERMINATION

J.B.H. = JOIST BEARING HEIGHT

1/8" = 1'-0" AWN01N

2 ELEVATION KEY NOTES

1. TWO PIECE COMPRESSION TRIM SEE DETAIL 4/A6
2. SMOOTH FACE CONCRETE MASONRY UNITS SEE PAINT DETAIL SCHEME THIS SHEET
3. WALL MOUNTED LIGHT FIXTURE
4. PIPE GUARD WITH RED SLEEVE
5. MFG. WHITE EXTERIOR INSULATED FINISH - PAINT WHITE
6. PAINT MAN DOOR RED & METAL FRAMES BLACK
7. DO NOT PAINT OVERHEAD DOOR PAINT ANGLES BLACK
8. EXPANSION JOINT
9. ALUMINUM STOREFRONT - CLEAR ANODIZED FINISH
10. GLASS AND ALUMINUM DOORS - CLEAR ANODIZED FINISH
11. FRONT WALL SIGN - 40" Left Stripe Channel cut
12. RIGHT SIDE WALL SIGN - 44" AZ ONLY Channel
13. TOILET WALL VENTS PAINT TO MATCH WALL
14. STORE ADDRESS - 8" WHITE REFLECTIVE NUMBERS
15. LEFT SIDE WALL SIGN - 44" AZ ONLY Channel
16.
17. NOT USED
18. INTERNAL ROOF DRAIN & OVERFLOW TO DAYLIGHT IN THIS LOCATION. BRASS COW TONGUE AT EXTERIOR.
19. NOT USED



1/4" = 1'-0" AWE01

3 EXTERIOR WALL COLOR SCHEME

GENERAL NOTES:

1. REFER TO SECTION 09900 OF THE SPECIFICATIONS FOR PAINT AND EXTERIOR COATINGS. ALL COLORS ARE BY SHERWIN-WILLIAMS PAINT COMPANY.
2. PAINT RESTROOM WALL VENTS TO MATCH THE ADJACENT WALL COLOR.
3. SEALANT AT EXPANSION JOINTS TO MATCH ADJACENT WALL COLOR.
4. ALL MASONRY JOINTS TO BE CONCAVE TOOLED.

4 GENERAL NOTES

SIGNAGE NOTES:

1. AUTOZONE'S SIGN VENDOR WILL FURNISH AND INSTALL ALL SIGNS UNLESS OTHERWISE SPECIFICALLY NOTED ON THE DRAWINGS. WALL SIGNS TO BE INSTALLED ON SURFACES THAT ARE FURNISHED AND PREPARED BY GENERAL CONTRACTOR.
2. SIGN INSTALLER SHALL OBTAIN SIGN PERMITS AND INSTALL ALL FREESTANDING SIGNS AND THEIR FOUNDATIONS UNLESS NOTED OTHERWISE. GENERAL CONTRACTOR SHALL INSURE SIGN LOCATION IS TO GRADE AND SHALL MARK WHERE SIGN IS TO BE LOCATED.
3. GENERAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF PRIMARY ELECTRICAL, AND FINAL ELECTRICAL HOOK-UP. SEE "SN" SHEETS FOR ADDITIONAL INFORMATION.
4. SEE SHEET E3 FOR LOCATIONS OF J-BOXES TERMINATING EACH WALL SIGN CIRCUIT.

3/32" = 1'-0" AWN02

5 SIGNAGE NOTES - BUILDING

REVISIONS

1	REV1	4	REV4
2	REV2	5	REV5
3	REV3	6	REV6

AutoZone Store No. 3600
740 E. 200 NORTH
ROOSEVELT
UT

EXTERIOR ELEVATIONS AND NOTES

Architect: Lew Ellis
123 South Front Street
Memphis, Tennessee 38103
TEL: 901-495-8707 FAX: (901) 495-8969

For Bidding & Contractor Information Contact:
McGraw - Hill Construction Tel. 615-884-1017
www.construction.com

07-14-20

7N2-L

A-2

PARTNER

GEOTECHNICAL REPORT

Roosevelt AutoZone
Northwest corner of East 200 North & North 800 East
Roosevelt, Utah 84066

June 2, 2020
Partner Project Number: 20-281927.1

Prepared for:

AutoZone
123 South Front Street
Memphis, Tennesse 38103

Engineers who understand your business

PARTNER

June 2, 2020

Kathy Rambo
AutoZone
123 South Front Street
Memphis, Tennessee 38103

Subject: Geotechnical Report
Roosevelt AutoZone
Northwest corner of E. 200 N. & N. 800 E.
Roosevelt, Utah 84066
Partner Project No. 20-281927.1

Dear Kathy Rambo:

Partner Assessment Corporation (Partner) presents the following general opinion regarding the geotechnical conditions at the subject site, based on the information contained within this geotechnical report and our general experience with construction practices and geotechnical conditions on other sites. This statement does not constitute an engineering recommendation.

- *The geotechnical conditions on the site related to the planned construction are expected to be more difficult in comparison with other similar sites*; given challenges associated with shallow groundwater and undocumented fills.*

The descriptions and findings of our geotechnical report are presented for your use in this electronic format, for your use as shown in the hyperlinked outline below. To return to this page after clicking a hyperlink, hold "alt" and press the "left arrow key" on your keyboard.

We appreciate the opportunity to be of service during this phase of the work.

Sincerely,

PROFESSIONAL ENGINEER
No. 10724469-2202
MATTHEW MARCUS
STATE OF UTAH

Matthew Marcus, PE
Technical Director – Geotechnical Engineering

Chris Landau

Chris Landau, PE
Project Geotechnical Engineer

** "similar sites" refers to sites with similar planned and current use, where we have recently performed similar work, and is a general statement not based on statistical analysis.*

1. GEOTECHNICAL EXECUTIVE SUMMARY

The executive summary is meant to consolidate information provided in more detail in the body of this report. This summary in no way replaces or overrides the detailed sections of the report.

Geologic Zones and Site Hazards

The site is located in the City of Roosevelt within the Middle Rocky Mountains geomorphic province of the state of Utah. Surficial geology at the site can be described as alluvium sourced from fluvial deltas. These deposits generally consist of silty sand, clayey sand, and gravel with bedrock located at depth. The site grades are relatively flat, sloping down to the south. The site was previously developed with evidence of existing buried foundations, utility lines, and construction debris associated with the demolition of the previous structure. The site may contain other remnants of previous construction. This portion of the state is prone to strong ground shaking associated with earthquakes.

Grading and Excavation Conditions

We anticipate excavations on the site to depths of up to 4 feet for building foundations and/or slabs on grade, and 5 feet for utility lines. Based on our boring data, conventional construction equipment in good working condition should be able to perform the planned excavations. Site excavations should anticipate the presence of old fills and remnants of previous construction that could be difficult to remove or cave during excavation. We recommend that this demolition and removal be performed by the grading contractor prior to laying out for new building foundations or utility excavation. The deleterious materials and debris should be removed to expose a clean base under the direction of a geotechnical engineer. Shallow groundwater was encountered during our investigation at depths ranging from about 11 to 14.5 feet below the existing site grades and may be present during construction. The contractor should be prepared to handle groundwater during excavation, which will require special planning and equipment.

Foundation/Slab Support

We anticipate that the new structure may be supported on conventional spread foundations and/or a slab on grade. Based on the boring data, site soil will generally provide suitable bearing material for building support at depths of 4 feet below existing site grades in the native silty/clayey sand. We recommend all conventional spread foundations be underlain by 24 inches or more of non-expansive compacted structural fill. Within the footprint of the AutoZone building and paved areas, we recommend stripping and removing all surface cover and debris, if any. Below slabs, we recommend the subgrade be proofrolled or otherwise evaluated and repaired under the direction of the engineer, and should then be scarified, moisture-conditioned, and compacted in-place prior to the placement of fills or slabs on grade.

Soil Reuse

Based on our borings, site soils will generally be usable for reuse as engineered fill in structural areas. For structural fill material, we recommend soil with a plasticity index of 15 or less and is free of deleterious material. We recommend engineered fill for the site be moisture conditioned and compacted to at least 95% of the maximum dry density as determined by ASTM D698 (standard proctor) and in accordance with Appendix C of this report.

Pavement Design

Roadway Type	Subgrade Preparation	Pavement Section
Parking area Light Duty (vehicles)	Proofrolled/Compacted Subgrade	3 in. Asphalt / 8 in. Aggregate base
Drive lanes Heavy Duty (Vehicles)	Proofrolled/Compacted Subgrade	4 in. Asphalt / 10 in. Aggregate base
Trash enclosure / Loading dock	Proofrolled/Compacted Subgrade	6 in. Concrete / 6 in. Aggregate base

2. REPORT OVERVIEW & LIMITATIONS

2.1 Report Overview

To develop this report, Partner accessed existing information and obtained site specific data from our exploration program. Partner also used standard industry practices and our experience on previous projects to perform engineering analysis and provide recommendations for construction along with construction considerations to guide the methods of site development. The opinions on the cover letter of this report do not constitute engineering recommendations, and are only general, based on our recent anecdotal experiences and not statistical analysis. Section 1.0, Executive Geotechnical Summary, compiles data from each of the report sections, while each of sections in the report presents a detailed description of our work. The detailed descriptions in Section 5.0 and Appendix C constitute our engineering recommendations for the project, and they supersede the Executive Geotechnical Summary.

The report overview, including a description of the planned construction and a list of references, as well as an explanation of the report limitations is provided in Section 2.0. The findings of Partner's geologic review are included in Section 3.0 Geologic Conditions and Hazards. The descriptions of our methods of exploration and testing, as well as our findings are included in Section 4.0 Geotechnical Exploration and Laboratory Results. In addition, logs of our exploration excavations are included in Appendix A of the report, and laboratory testing is included in Appendix B of the report. Site Location and Site Plan maps are included as Figures in the report.

2.2 Assumed Construction

Partner's understanding of the planned construction was based on information provided by the project team. The proposed site plan is included as Figure 2 to this report. Partner's assumptions regarding the new construction are presented in the below table.

Property Data	
Property Use:	AutoZone Store
Building footprint/height	Approximately 7,500 sf, single story
Land Acreage (Ac):	Approximately 0.72 acres
Number of Buildings:	1
Expected Cuts and Fills	Up to 5 feet for foundation and utility installation
Type of Construction:	Assumed slab on grade with concrete masonry/light weight wood framing
Foundations Type	Assumed conventional spread foundations/slabs on grade
Anticipated Loads	2,000 psf
Traffic Loading	Primarily vehicular traffic and occasional heavy truck traffic
Site Information Sources:	Google Earth & Client Provided Site Plan

2.3 References

The following references were used to generate this report:

Federal Emergency Management Agency, FEMA Flood Map Service Center, accessed 5/26/20

Google Earth Pro (Online), accessed 5/26/20

Historic Aerials by NETR Online, accessed 5/26/20

United States Geological Survey, Utah Interactive Geologic Map accessed 5/26/20

United States Geological Survey, Lower 48 States 2014 Seismic Hazard Map, accessed online 5/26/20

United States Geologic Survey, Earthquake Hazards Program (Online), accessed 5/26/20

2.4 Limitations

The conclusions, recommendations, and opinions in this report are based upon soil samples and data obtained in widely spaced locations that were accessible at the time of exploration and collected based on project information available at that time. Our findings are subject to field confirmation that the samples we obtained were representative of site conditions. If conditions on the site are different than what was encountered in our borings, the report recommendations should be reviewed by our office, and new recommendations should be provided based on the new information and possible additional exploration if needed. It should be noted that geotechnical subsurface evaluations are not capable of predicting all subsurface conditions, and that our evaluation was performed to industry standards at the time of the study, no other warranty or guarantee is made.

Likewise, our document review and geologic research study made a good-faith effort to review readily available documents that we could access and were aware of at the time, as listed in this letter. We are not able to guarantee that we have discovered, observed, and reviewed all relevant site documents and conditions. If new documents or studies are available following the completion of the report, the recommendations herein should be reviewed by our office, and new recommendations should be provided based on the new information and possible additional exploration if needed.

This report is intended for the use of the client in its entirety for the proposed project as described in the text. Information from this report is not to be used for other projects or for other sites. All of the report must be reviewed and applied to the project or else the report recommendations may no longer apply. If pertinent changes are made in the project plans or conditions are encountered during construction that appear to be different than indicated by this report, please contact this office for review. Significant variations may necessitate a re-evaluation of the recommendations presented in this report. The findings in this report are valid for one year from the date of the report. This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted Partner's standard Terms and Conditions, a copy of which can be found at http: / www.partneresi.com/terms-and-conditions.php

If parties other than Partner are engaged to provide construction geotechnical services, they must be notified that they will be required to assume complete responsibility for the geotechnical phase of the project by concurring with the findings and recommendations in this report or providing alternate recommendations.

3. GEOLOGIC CONDITIONS & HAZARDS

This section presents the results of a geologic review performed by Partner, for the proposed new construction on site. The general location of the project is shown on Figure 1.

3.1 Site Location and Project Information

The planned construction will be situated within a commercial area of Roosevelt, Utah. The subject property is currently a vacant parcel previously developed with concrete flatwork and foundations. The immediately surrounding properties consist of commercial and residential buildings on all sides. Figure 2 presents the project site and the locations of our site exploration. Based on our review of available documents, the site has had the following previous uses:

Historical Use Information		
Period/Date	**Source**	**Description/Use**
1961-Present	Aerial Photographs, On-site observations	Commercial Structure and parking

3.2 Geologic Setting

The subject property is situated in the Middle Rocky Mountains physiographic province of the state of Utah. The uppermost geologic formation underlying the soils at the subject property is the Quaternary Age Surficial Deposits. This formation consists mostly of intermittent stream drainage and alluvial deposits, Sand-dominated fine-grained deltaic deposits washed downslope by small scale fluvial processes from about 12.2 ka to present. The thickness of this formation is estimated to be about 30 feet.

A general summary of the geologic data compiled for this project is provided in the below table.

Geologic Data		
Parameter	**Value**	**Source**
Geomorphic Zone	Middle Rocky Mtn.	USGS
Ground Elevation	Approx. 5,078 feet above Mean Sea Level	USGS
Flood Elevation	Zone X (0.2% Flood Hazard)	FEMA
Seismic Hazard Zone	Moderate to high	USGS
Geologic Hazards	Ground Shaking	USGS
Surface Cover	Asphalt Concrete Pavement	Partner Borings
Site Modifications	Previous Commercial	Google Earth
Surficial Geology	Alluvium	USGS
Depth to Bedrock	N/A	Partner Borings
Groundwater Depth	Approx. 11 to 14.5 feet	Partner Borings

3.3 Geologic Hazards

Geologic hazards with the potential to affect development in Utah are earthquake ground shaking, landslides, and liquefaction. Utah is generally considered to have a high seismic risk per the USGS 2014

Hazard Risk Map, though this area is distant from major Quaternary faults identified by the USGS. Additionally, this area is urban, and composed of relatively flat terrain that is not at a high-risk for landslide activity. This region of Utah is not known to be susceptible to sinkhole activity. Expansive soils are not a site risk. In accordance with the American Society of Civil Engineers (ASCE) Document 7-16, earthquake design accelerations from the USGS website are provided below.

Seismic Item	Value	Seismic Item	Value
Site Classification	D	Seismic Design Category	C
Fa	1.558	Fv	2.4
Ss	0.303g	S_1	0.087g
S_{MS}	0.472g	S_{M1}	0.209g
S_{DS}	0.315g	S_{D1}	0.139g
MCE_R PGA	0.174g	Design PGA (2/3 of MCE_R)	0.116g

4. GEOTECHNICAL EXPLORATION & LABORATORY RESULTS

Our evaluation of soils on the site included field exploration and laboratory testing. The field exploration and laboratory testing programs are briefly described below. Data reports from the field exploration and laboratory testing are provided in Appendix A and Appendix B, respectively.

4.1 Soil Borings

The soil boring program was conducted on May 14, 2020. Eight (8) borings designated B1 through B8, were advanced by the use of a truck-mounted drill using hollow-stem auger drilling techniques. The borings were made to depths of about 15 feet in the building footprint (B1 through B5), and 10 feet in the parking areas (B6 through B8). The approximate locations of the exploratory borings are shown on Figure 2.

Logs of subsurface conditions encountered in the borings were prepared in the field by a representative of Partner Engineering. Soil samples consisting of Standard Penetration Tests (SPT) samples were collected at approximately 2.5 and 5-foot depth intervals and were returned to the laboratory for testing. The SPTs were performed in accordance with ASTM D 1586. Typed boring logs were prepared from the field logs and are presented in Appendix A. A summary table description is provided below:

Surficial Geology		
Strata	**Depth to Bottom of Layer (bgs*)**	**Description**
Asphalt Concrete Pavement	Approx. 2 inches	Partner Borings
Crushed Rock Base Course	Approx. 10 inches	Partner Borings
Native Stratum 1	7 feet	Clayey Sand (SC) and CLAY (CL)
Native Stratum 2	15 feet +	Sandy Gravel (GW)
Groundwater	Approx. 11 feet	Partner Borings
Bedrock	N/A	Not Encountered

bgs – below ground surface

4.2 Groundwater

Groundwater was encountered on the site during drilling at depths ranging from about 11 to 14.5 feet below ground surface in our borings. However, groundwater levels fluctuate over time and may be different at the time of construction and during the project life.

4.3 Laboratory Evaluation

Selected samples collected during drilling activities were tested in the laboratory to assist in evaluating engineering properties of subsurface materials at the site. The results of laboratory analyses are presented in Appendix B.

5. GEOTECHNICAL RECOMMENDATIONS & PARAMETERS

The following discussion of findings for the site is based on the assumed construction, geologic review, results of the field exploration, and laboratory testing programs. The recommendations of this report are contingent upon adherence to Appendix C of this report, General Geotechnical Design and Construction Considerations. For additional details on the below recommendations, please see Appendix C.

5.1 Geotechnical Recommendations

The proposed construction is generally feasible from a geotechnical perspective provided the recommendations and assumptions of this report are followed.

Geologic/General Site Considerations

- The site is located in the City of Roosevelt within the Middle Rocky Mountains geomorphic province of the state of Utah. Surficial geology at the site can be described as alluvium sourced from fluvial deltas. These deposits generally consist of silty sand, clayey sand, and gravel with bedrock located at depth. The site grades are relatively flat, sloping down to the south. The site was previously developed with evidence of existing buried foundations, utility lines, and construction debris associated with the demolition of the previous structure. The site may contain other remnants of previous construction. This portion of the state is prone to strong ground shaking associated with earthquakes.
- Given the presence of the site in a seismically active area, ground shaking during earthquakes should be anticipate during the project life. State, County, City, and other jurisdictions in seismically active areas update seismic standards on a regular basis. The design team should carefully evaluate all of the building requirements for the project.

Grading and Excavation Considerations

- We anticipate excavations on the site to depths of up to 4 feet for building foundations and/or slabs on grade, and 5 feet for utility lines. Based on our boring data, conventional construction equipment in good working condition should be able to perform the planned excavations. Site excavations should anticipate the presence of old fills and remnants of previous construction that could be difficult to remove or cave during excavation. We recommend that this demolition and removal be performed by the grading contractor prior to laying out for new building foundations or utility excavation. The deleterious materials and debris should be removed to expose a clean base under the direction of a geotechnical engineer. Shallow groundwater was encountered during our investigation at depths ranging from about 11 to 14.5 feet below the existing site grades and may be present during construction. The contractor should be prepared to handle groundwater during excavation, which will require special planning and equipment.
- Groundwater may be present during excavations depending on conditions at the time of construction. The contractor should be prepared to handle groundwater during excavation, which will require special planning and equipment. Based on our boring data, conventional construction equipment in good working condition should be able to perform the planned excavations. The

undocumented fills and remnants of previous construction could cave or be difficult to remove and require additional planning and equipment.

- Shallow groundwater was encountered at depths ranging from about 11 to 14.5 feet below the existing ground surface during drilling. However, groundwater levels can fluctuate over time. Excavations should be sloped and/or shored to protect worker safety and adjacent properties, per OSHA and local guidelines and the presence of existing utilities should be thoroughly and carefully checked prior to digging. Appendix C further discusses excavation recommendations in the following sections, which can be accessed by clicking hyperlinks: Earthwork, Underground Pipeline, Excavation De-Watering.

Foundation Options

- We anticipate that the new structure may be supported on conventional spread foundations and/or a slab on grade. Based on the boring data, site soil will generally provide suitable bearing material for building support at depths of 4 feet below existing site grades in the native silty/clayey sand. We recommend all conventional spread foundations be underlain by 24 inches or more of non-expansive compacted structural fill. Within the footprint of the AutoZone building and paved areas, we recommend stripping and removing all surface cover and debris, if any. Below slabs, we recommend the subgrade be proofrolled or otherwise evaluated and repaired under the direction of the engineer, and should then be scarified, moisture-conditioned, and compacted in-place prior to the placement of fills or slabs on grade.
- Section 5.2 of this report provides a table outlining the embedment depth, bearing capacity, settlement and other parameters for foundation design and construction.

On-Grade Construction Considerations

- In new structural areas of the site, all remnants of previous construction, vegetation and/or deleterious materials should be completely removed to exposed clean subgrade soil. In new fill, concrete flatwork, and pavement areas, cleaned subgrade should be proofrolled and evaluated by the engineer with a loaded water truck (4,000 gallon) or equivalent rubber-tired equipment. Soft or unstable areas should be repaired per the direction of the engineer. Once approved, the subgrade soil should be scarified to a depth of 12 inches, moisture conditioned, and compacted as engineered fill. Improvements in these areas should extend laterally beyond the new structure limits 2 feet or a distance equal to or greater than the layer thickness, whichever is greater. This zone should extend vertically from the bearing grade elevation to the base of the fill. The thicknesses of the layer, settlement estimates, and modulus values are provided on the design tables in the next section.
- Based on our borings, we anticipate that some over-excavation will result from proofrolling operations. In areas where deep instability is encountered, we recommend test pits be excavated and an engineer be called to perform an evaluation of the issue and to propose a resolution. Such resolutions may include but are not limited to: the use of geotextiles, chemical treatments (soil cement, hydrated lime, etc.) thickened slabs or pavements sections, lime-treated aggregate base, or others. Pavement sections provided in Section 5.2 are based on approved, compacted in-place

soils being used in the subgrade. If subgrade conditions in the upper 3 feet of pavement areas vary or are improved, the pavement sections may be modified.

- Appendix C provides additional recommendations for foundations in the following sections: Cast-in-place Concrete, Foundations, Earthwork, Paving, Subgrade Preparation which can be accessed by clicking the hyperlinks.

Soil Reuse Considerations

- Based on our borings, site soils will generally be usable for reuse as engineered fill in structural areas. For structural fill material, we recommend soil with a plasticity index of 15 or less and is free of deleterious material. We recommend engineered fill for the site be moisture conditioned and compacted to at least 95% of the maximum dry density as determined by ASTM D698 (standard proctor) and in accordance with Appendix C of this report.

Geotechnical Concrete and Steel Construction Considerations

- Soil/rock may be corrosive to concrete. We recommend using corrosion resistant concrete (*e.g.* Type II/V Portland Cement, a fly ash mixture of 25 percent cement replacement, and a water/cement ratio of 0.45 or less) as directed by the producer, engineer or other qualified party based on their knowledge of the materials and site conditions. Concrete exposed to freezing weather should be air-entrained. Mix designs should be well-established and reviewed by the project engineers prior to placement, to verify the design is appropriate to meet the project needs and parameters provided in this report. Quality control testing should be performed to verify appropriate mixes are used and are properly handled and placed. Please refer to Appendix C, Cast In-Place Concrete for more details.
- Soil/rock may be corrosive to un-protected metallic elements such as pipes, poles, rebar, etc. We recommend the use of coatings and/or cathodic protection for metals in contact with the ground, as directed by the product manufacturer, engineer or other qualified party based on their knowledge of the materials to be used and site soil conditions.

Site Storm Water Considerations

- Surface drainage and landscaping design should be carefully planned to protect the new structures from erosion/undermining, and to maintain the site earthwork and structure subgrades in a relatively consistent moisture condition. Water should not flow towards or pond near to new structures, and high water-demand plants should not be planned near to structures. Appendix C provides additional recommendations for foundations in the following sections: SITE GRADING AND DRAINAGE, WATER PROOFING which can be accessed by clicking the hyperlinks.
- We recommend consulting with the landscape designer and civil engineer regarding management of site storm water and irrigation water, as changes in moisture content below the site after construction will lead to soil movement and potential distress to the building.

5.2 Geotechnical Parameters

Based on the findings of our field and laboratory testing, we recommend that design and construction proceed per industry accepted practices and procedures, as described in Appendix C, General Geotechnical Design and Construction Considerations (Considerations).

Prepared Subgrade Parameters – (hyperlink to Construction Considerations)

Prepared Subgrade Parameters				
Structure	**Design Values**	**Cover Depth**	**Bearing Surface [a]**	**Static Settlement [d]**
Conventional Slab on Grade	k=125 pci [b] q_{all} = 100 psf[c] μ = 0.35	N/A	Proofrolled, approved, compacted native material	<1 inch
Spread Foundations	q_{all} = 2.0 ksf[c] μ = 0.35	30 inches	24 inches of non-expansive structural fill, over approved, compacted native material.	<1 inch

[a] Repairs in bearing *surface areas should be structural fill per the recommendation of the Earthwork section of Appendix C that is moisture conditioned to within 3 percent below to optimum moisture content and compacted to 95 percent or more of the soil maximum dry density per ASTM D1557. Expansive material should not be located within the upper* 3 feet of the soil subgrade.

[b] *Subgrade modulus value "k", assuming the grade slab is supported by aggregate layer roughly equal to slab thickness (minimum 4 inches), as required for capillary break*

[c] *Can be increased by 1/3 for temporary loading such as seismic and wind, allowable parameters, estimated FS of 2.5*

[d] Differential settlement is expected to be half to ¾ of total settlement

[e] For conventional slab on grade, reinforce with 3/8-inch reinforcing steel 18 inches on center.

Paving Structural Sections – (hyperlink to Construction Considerations)

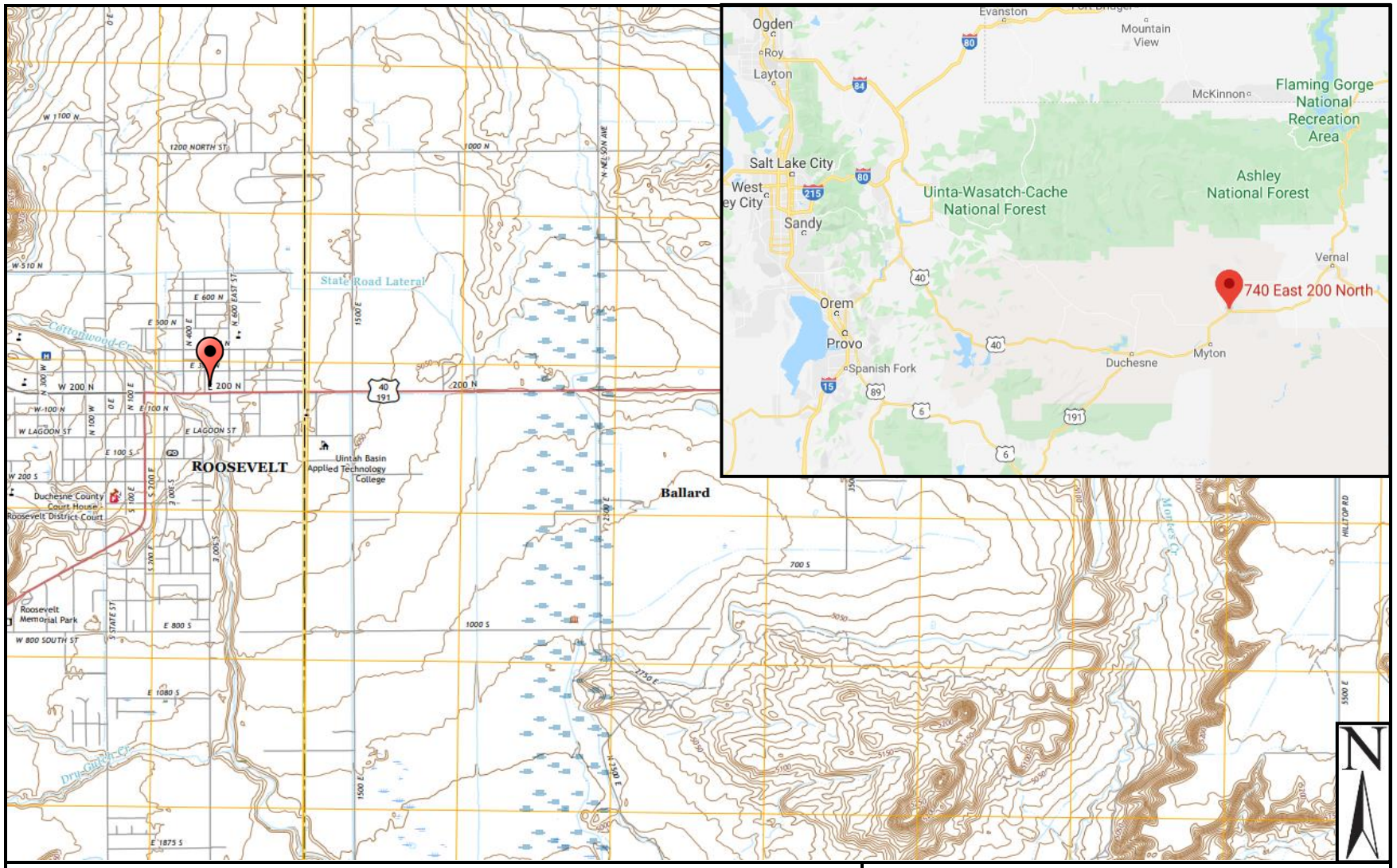
Pavement Sections		
Roadway Type	**Subgrade Preparation [a]**	**Pavement Section [b]**
Parking area Light Duty (Vehicles)	Proofrolled/Compacted Subgrade	3 in. Asphalt / 8 in. Aggregate base
Drive lanes Heavy Duty (Vehicles)	Proofrolled/Compacted Subgrade	4 in. Asphalt / 10 in. Aggregate base
Trash enclosure / Loading dock	Proofrolled/Compacted Subgrade	6 in. Concrete[c] / 6 in. Aggregate base

[a] *Repairs in proofrolled areas should be structural fill per the recommendation of the APPCEarthwork (hyperlink to Construction Considerations) that is moisture conditioned to within 3 percent above to optimum moisture content and compacted to 95 percent or more of the soil maximum dry density per ASTM D1557.*

[b] *1 inch of pavement may be reduced if 6-in of lime or cement-treated soil is used with a 500 psi 28-day compressive strength. Soils with Plasticity Index of 10 or more are generally candidates for lime treatment, other soils are candidates for cement treatment, if any.*

FIGURES

PARTNER



Source: U.S. Geological Survey, USGS US Topo 7.5-minute map for Roosevelt, UT 2020: USGS - National Geospatial Technical Operations Center (NGTOC).

FIGURE 1 – SITE VICINITY PLAN

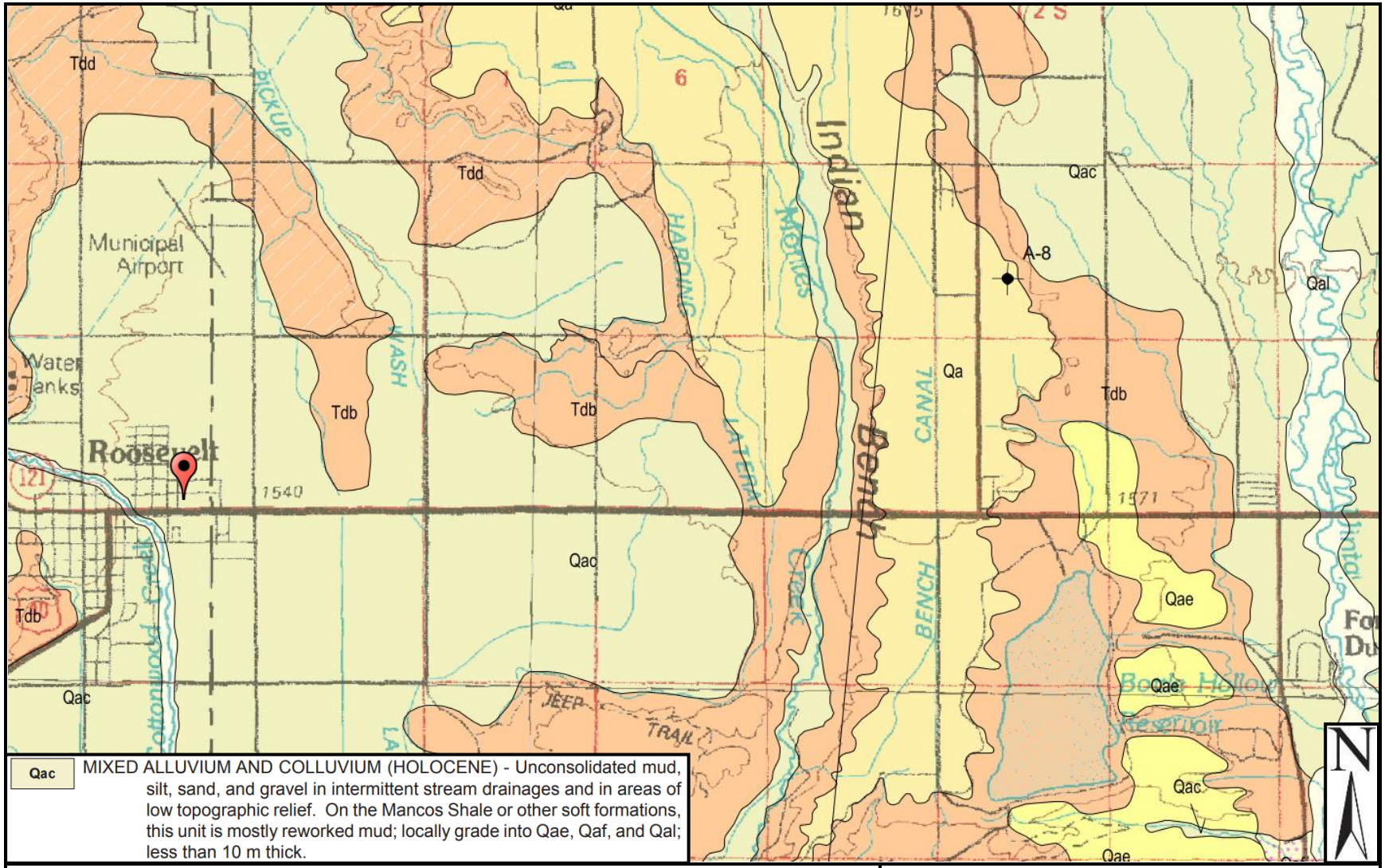
KEY

Approximate Site Location

Source: Google Earth Pro and Client Provided Site Plan

FIGURE 2 – BORING LOCATION PLAN

KEY Approximate Boring Location



Qac	MIXED ALLUVIUM AND COLLUVIUM (HOLOCENE) - Unconsolidated mud, silt, sand, and gravel in intermittent stream drainages and in areas of low topographic relief. On the Mancos Shale or other soft formations, this unit is mostly reworked mud; locally grade into Qae, Qaf, and Qal; less than 10 m thick.

Source: Utah Geological Survey, GEOLGIC MAP OF THE VERNAL 30' X 60' QUADRANGLE, UINTAH AND DUCHESNE COUNTIES, Douglas A. Sprinkel 2007

FIGURE 3 – GEOLOGIC PLAN

KEY Approximate Site Location

APPENDIX A

Boring Logs

PARTNER

BORING LOG KEY - EXPLANATION OF TERMS

SURFACE COVER: General discription with thickness to the inch, ex. Topsoil, Concrete, Asphalt, etc,

FILL: General description with thickness to the 0.5 feet. Ex. Roots, Debris, Processed Materials (Pea Gravel, etc.)

NATIVE GEOLOGIC MATERIAL: Deposit type, 1.Color, 2.moisture, 3.density, 4.SOIL TYPE, other notes - Thickness to 0.5 feet

1. Color - Generalized

Light Brown (usually indicates dry soil, rock, caliche)
Brown (usually indicates moist soil)
Dark Brown (moist to wet soil, organics, clays)
Reddish (or other bright colors) Brown (moist, indicates some soil development/or residual soil)
Greyish Brown (Marine, sub groundwater - not the same as light brown above)
Mottled (brown and gray, indicates groundwater fluctuations)

2. Moisture

dry - only use for wind-blown silts in the desert
damp - soil with little moisture content
moist - near optimum, has some cohesion and stickyness
wet - beyond the plastic limit for clayey soils, and feels wet to the touch for non clays
saturated - Soil below the groundwater table, sampler is wet on outside

3A. Relative Density for Granular Soils

Relative Density	Ring	SPT
very loose	0-7	0-4
loose	7-14	4-10
medium dense	14-28	10-30
dense	28-100	30-50
very dense	100+	Over 50

3B. Consistency of Fine-Grained Cohesive Soils

Consistnecy	SPT	Undrained Shear Strength, tsf
very soft	0-2	less than 0.125
soft	2-4	0.125 - 0.25
medium stiff	4-8	0.25 - 0.50
stiff	8-15	0.50 - 1.0
very stiff	15-30	1.0 - 2.0
hard	Over 30	Over 2.0

4. Classification

Determine percent Gravel (Material larger than the No. 4 Sieve)
Determine percent fines (Material passing the No. 200 Sieve)
Determine percent sand (Passing the No. 4 and retained on the No. 200 Sieve)
Determine if clayey (make soil moist, if it easily roll into a snake it is clayey)

Coarse Grained Soils (Less than 50% Passing the No. 200 Sieve)

GP	SP	Mostly sand and gravel, with less than 5 % fines	sandy GRAVEL	SAND
GP-GM	SP-SM	Mostly sand and gravel 5-12% fines, non-clayey	sandy GRAVEL with silt	SAND with Silt
GP-GC	SP-SC	Mostly sand and gravel 5-12% fines, clayey	sandy GRAVEL with clay	SAND with clay
GC	SC	Mostly sand and gravel >12% fines clayey	clayey GRAVEL	clayey SAND
GM	SM	Mostly sand and gravel >12% fines non-clayey	silty GRAVEL	silty SAND

Fine Grained Soils (50% or more passes the No. 200 Sieve)

ML	Soft, non clayey	SILT with sand
MH	Very rare, holds a lot of water, and is pliable with very low strength	high plasticity SILT
CL	If sandy can be hard when dry, will be stiff/plastic when wet	CLAY with sand/silt
CH	Hard and resiliant when dry, very strong/sticky when wet (may have sand in it)	FAT CLAY

H = Liquid limit over 50%, L - LL under 50%
C = Clay
M = Silt

Samplers

S = Standard split spoon (SPT)
R = Modified ring
Bulk = Excavation spoils
ST = Shelby tube G= Grab Sample
C = Rock core

Boring Number:	B-1			Boring Log Page 1 of 1
Location:	See Figure 2		Date Started:	5/14/2020
Site Address:	737 E 200 N		Date Completed:	5/14/2020
	Roosevelt, UT 84066		Depth to Groundwater:	14.5 ft
Project Number:	20-281927.1		Field Technician:	EC
Drill Rig Type:	Mobile B-80		Western Technologies Inc	
Sampling Equipment:	Split Spoon		420 Lawndale Drive	
Borehole Diameter:	7 in.		Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (2 in.)
0.5			SC	**Native:** Brown, dry, medium dense Clayey SAND
1				
1.5				
2				
2.5	S	13		---Damp below 2.5 feet
3				
3.5				
4				
4.5				
5	S	7		---Brown to red, loose below 5 feet
5.5				
6				
6.5				
7				
7.5	S	7		
8				
8.5				
9				
9.5				
10	S	7	CL	Red to brown, moist, medium stiff, sandy CLAY
10.5				
11				
11.5				
12				
12.5				
13				
13.5				
14				
14.5			▼	Groundwater encountered at 14.5 ft
15	S	50/1"	GW	Light brown, wet, SANDSTONE
15.5				Boring terminated at 15 ft
16				Backfilled with soil cuttings upon completion
16.5				Groundwater encountered at 14.5 ft
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-2	Boring Log Page 1 of 1	
Location:	See Figure 2	Date Started:	5/14/2020
Site Address:	737 E 200 N	Date Completed:	5/14/2020
	Roosevelt, UT 84066	Depth to Groundwater:	N/A
Project Number:	20-281927.1	Field Technician:	EC
Drill Rig Type:	Mobile B-80	Western Technologies Inc	
Sampling Equipment:	Split Spoon	420 Lawndale Drive	
Borehole Diameter:	7 in	Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (2 in.)
0.5			SC	**Native:** Brown, dry, medium dense clayey SAND
1				
1.5				
2				
2.5	S	11		---Damp below 2.5 feet
3				
3.5				
4				
4.5				
5	S	7		---Brown to gray, loose at 5 feet
5.5				
6				
6.5				
7				
7.5	S	13		---Brown, medium dense at 7.5 feet
8				
8.5				
9				
9.5				
10	S	7		---Moist, loose below 10 feet
10.5				
11				
11.5				
12				
12.5				
13				
13.5				
14				
14.5				
15	S	50/2"	GW	Light brown, wet, SANDSTONE
15.5				Boring terminated at 15 feet bgs
16				Backfilled with soil cuttings upon completion
16.5				Groundwater not encountered
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-3			Boring Log Page 1 of 1	
Location:	See Figure 2			Date Started:	5/14/2020
Site Address:	737 E 200 N			Date Completed:	5/14/2020
	Roosevelt, UT 84066			Depth to Groundwater:	15 ft
Project Number:	20-281927.1			Field Technician:	EC
Drill Rig Type:	Mobile B-80			Western Technologies Inc	
Sampling Equipment:	Split Spoon			420 Lawndale Drive	
Borehole Diameter:	7 in			Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (10 in.)
0.5				
1			SM	**Native:** Brown, dry, medium dense, silty SAND
1.5				
2				
2.5	S	12		---Damp below 2.5 feet
3				
3.5				
4				
4.5				
5	S	13	SC	Brown, damp, medium dense, clayey SAND
5.5				
6				
6.5				
7				
7.5	S	11	CL	Brown, moist, stiff, sandy CLAY
8				
8.5				
9				
9.5				
10	S	18	SC	Damp, medium dense, clayey SAND
10.5				
11				
11.5				
12				
12.5				
13				
13.5				
14			GW	
14.5				
15	S	50/5"	▼	Light brown with red, wet, very dense, clayey GRAVEL with sand
15.5				Boring terminated at 15 feet bgs
16				Backfilled with soil cuttings upon completion
16.5				Groundwater encountered at 15 feet
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-4	Boring Log Page 1 of 1	
Location:	See Figure 2	Date Started:	5/14/2020
Site Address:	737 E 200 N	Date Completed:	5/14/2020
	Roosevelt, UT 84066	Depth to Groundwater:	N/A
Project Number:	20-281927.1	Field Technician:	EC
Drill Rig Type:	Mobile B-80	Western Technologies Inc	
Sampling Equipment:	Split Spoon	420 Lawndale Drive	
Borehole Diameter:	7 in	Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (10 in.)
0.5				
1			SM	**Native:** Brown, dry, medium dense, silty SAND
1.5				
2				
2.5	S	11		---Light brown, damp below 2.5 feet
3				
3.5				
4				
4.5				
5	S	13		
5.5				
6				
6.5				
7				
7.5	S	4	SC	Brown, moist, very loose to loose, clayey SAND
8				
8.5				
9				
9.5				
10	S	16		---Medium dense below 10 feet
10.5				
11				
11.5				
12				
12.5				
13				
13.5				
14				
14.5				
15	S	50/4"	GW	Red, damp, very dense, sandy GRAVEL
15.5				Boring terminated at 15 feet bgs
16				Backfilled with soil cuttings upon completion
16.5				Groundwater not encountered
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-5	Boring Log Page 1 of 1	
Location:	See Figure 2	Date Started:	5/14/2020
Site Address:	737 E 200 N	Date Completed:	5/14/2020
	Roosevelt, UT 84066	Depth to Groundwater:	11 ft
Project Number:	20-281927.1	Field Technician:	EC
Drill Rig Type:	Mobile B-80	Western Technologies Inc	
Sampling Equipment:	Split Spoon	420 Lawndale Drive	
Borehole Diameter:	7 in	Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (10 in.)
0.5				
1			SC	**Native:** Brown, dry, loose, clayey SAND
1.5				
2				
2.5	S	7		---Damp below 2.5 feet
3				
3.5				
4				
4.5				
5	S	7		
5.5				
6				
6.5				
7				
7.5	S	4	CL	Moist, soft to medium stiff, sandy CLAY
8				
8.5				
9				
9.5				
10	S	6	SC	Wet, loose, clayey SAND
10.5				
11			▼	Groundwater encountered at 11 ft
11.5				
12				
12.5				
13				
13.5				
14				
14.5				
15	S	50/3"	GW	Brown to yellow, very dense, sandy GRAVEL
15.5				Boring terminated at 15 feet bgs
16				Backfilled with soil cuttings upon completion
16.5				Groundwater encountered at 11 ft
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-6			Boring Log Page 1 of 1	
Location:	See Figure 2			Date Started:	5/14/2020
Site Address:	737 E 200 N			Date Completed:	5/14/2020
	Roosevelt, UT 84066			Depth to Groundwater:	N/A
Project Number:	20-281927.1			Field Technician:	EC
Drill Rig Type:	Mobile B-80			Western Technologies Inc	
Sampling Equipment:	Split Spoon			420 Lawndale Drive	
Borehole Diameter:	7 in			Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (10 in.)
0.5				
1			SC	**Native:** Brown, dry, loose, clayey SAND, contains gravel
1.5				
2				
2.5	S	8		---Damp, loose, gravel absent below 2.5 feet
3				
3.5				
4				
4.5				
5	S	5		
5.5				
6				
6.5				
7				
7.5	S	6	CL	Brown, moist, medium stiff, sandy CLAY
8				
8.5				
9				
9.5				
10	S	7	SM	Brown, damp, loose, silty SAND
10.5				
11				
11.5				Boring terminated at 11.5 feet bgs
12				Backfilled with soil cuttings upon completion
12.5				Groundwater not encountered
13				
13.5				
14				
14.5				
15				
15.5				
16				
16.5				
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-7			Boring Log Page 1 of 1	
Location:	See Figure 2			Date Started:	5/14/2020
Site Address:	737 E 200 N			Date Completed:	5/14/2020
	Roosevelt, UT 84066			Depth to Groundwater:	11 ft
Project Number:	20-281927.1			Field Technician:	EC
Drill Rig Type:	Mobile B-80			Western Technologies Inc	
Sampling Equipment:	Split Spoon			420 Lawndale Drive	
Borehole Diameter:	7 in			Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (10 in.)
0.5				
1			SC	**Native:** Brown, dry, loose, clayey SAND, contains gravel
1.5				
2				
2.5	S	7		---Damp, gravel absent below 2.5 feet
3				
3.5				
4				
4.5				
5	S	7	CL	Moist, medium stiff, sandy CLAY
5.5				
6				
6.5				
7				
7.5	S	7		
8				
8.5				
9				
9.5				
10	S	7		---Wet below 10 feet
10.5				
11			▼	Groundwater encountered at 11 ft
11.5				Boring terminated at 11.5 feet bgs
12				Backfilled with soil cuttings upon completion
12.5				Groundwater encountered at 11 ft
13				
13.5				
14				
14.5				
15				
15.5				
16				
16.5				
17				
17.5				
18				
18.5				
19				
19.5				
20				

Boring Number:	B-8	Boring Log Page 1 of 1	
Location:	See Figure 2	Date Started:	5/14/2020
Site Address:	737 E 200 N	Date Completed:	5/14/2020
	Roosevelt, UT 84066	Depth to Groundwater:	11 ft
Project Number:	20-281927.1	Field Technician:	EC
Drill Rig Type:	Mobile B-80	Western Technologies Inc	
Sampling Equipment:	Split Spoon	420 Lawndale Drive	
Borehole Diameter:	7 in	Salt Lake City, Utah 84115	

Depth, FT	Sample	N Value	USCS	Description
0				**Surface Cover:** Asphalt Concrete PAVEMENT (2 in.) over Crushed Rock Base (10 in.)
0.5				
1			SC	**Native:** Brown, dry, medium dense, clayey SAND, contains gravel
1.5				
2				
2.5	S	13		---Damp, gravel absent below 2.5 feet
3				
3.5				
4				
4.5				
5	S	12		
5.5				
6				
6.5				
7				
7.5	S	4	CL	Brown, moist, soft to medium stiff, sandy CLAY
8				
8.5				
9				
9.5				
10	S	5	SM	Brown, wet, loose, silty SAND
10.5				
11			▼	Groundwater encountered at 11 ft
11.5				Boring terminated at 11.5 feet bgs
12				Backfilled with soil cuttings upon completion
12.5				Groundwater encountered at 11 ft
13				
13.5				
14				
14.5				
15				
15.5				
16				
16.5				
17				
17.5				
18				
18.5				
19				
19.5				
20				

APPENDIX B

Lab Data

PARTNER

Index Test Data

Boring	Depth, ft	Moisture Content (%)	Percent Passing #200 Sieve
B-5	7.5	21	76
B-5	10	17	45
B-6	2.5	11	36
B-7	5	16	61
B-8	7.5	18	58

APPENDIX C

General Geotechnical Design and Construction Considerations

Subgrade Preparation

Earthwork – Structural Fill/Excavations

Underground Pipeline Installation – Structural Backfill

Cast-in-Place Concrete

Foundations

Laterally Loaded Structures

Excavations and Dewatering

Waterproofing and Drainage

Chemical Treatment of Soils

Paving

Site Grading and Drainage

PARTNER

SUBGRADE PREPARATION

1. In general, construction should proceed per the project specifications and contract documents, as well as governing jurisdictional guidelines for the project site, including but not limited to the applicable State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Subgrade preparation in this section is considered to apply to the initial modifications to existing site conditions to prepare for new planned construction.
3. Prior to the start of subgrade preparation, a detailed conflict study including as-builts, utility locating, and potholing should be conducted. Existing features that are to be demolished should also be identified and the geotechnical study should be referenced to determine the need for subgrade preparation, such as over-excavation, scarification and compaction, moisture conditioning, and/or other activities below planned new structural fills, slabs on grade, pavements, foundations, and other structures.
4. The site conflicts, planned demolitions, and subgrade preparation requirements should be discussed in a pre-construction meeting with the pertinent parties, including the geotechnical engineer, inspector, contractors, testing laboratory, surveyor, and others.
5. In the event of preparations that will require work near to existing structures to remain in-place, protection of the existing structures should be considered. This also includes a geotechnical review of excavations near to existing structures and utilities and other concerns discussed in General Geotechnical Design and Construction Considerations, EARTHWORK and UNDERGROUND PIPELINE INSTALLATION.
6. Features to be demolished should be completely removed and disposed of per jurisdictional requirements and/or other conditions set forth as a part of the project. Resulting excavations or voids should be backfilled per the recommendations in the General Geotechnical Design and Construction Considerations, EARTHWORK section.
7. Vegetation, roots, soils containing organic materials, debris and/or other deleterious materials on the site should be removed from structural areas and should be disposed of as above. Replacement of such materials should be in accordance with the recommendations in the General Geotechnical Design and Construction Considerations, EARTHWORK section
8. Subgrade preparation required by the geotechnical report may also call for as over-excavation, scarification and compaction, moisture conditioning, and/or other activities below planned structural fills, slabs on grade, pavements, foundations, and other structures. These requirements should be provided within the geotechnical report. The execution of this work should be observed by the geotechnical engineering representative or inspector for the site. Testing of the subgrade preparation should be performed per the recommendations in the General Geotechnical Design and Construction Considerations, EARTHWORK section.

9. Subgrade Preparation cannot be completed on frozen ground or on ground that is not at a proper moisture condition. Wet subgrades may be dried under favorable weather if they are disked and/or actively worked during hot, dry, weather, when exposed to wind and sunlight. Frozen ground or wet material can be removed and replaced with suitable material. Dry material can be pre-soaked, or can have water added and worked in with appropriate equipment. The soil conditions should be monitored by the geotechnical engineer prior to compaction. Following this type of work, approved subgrades should be protected by direction of surface water, covering, or other methods, otherwise, re-work may be needed.

EARTHWORK – STRUCTURAL FILL

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Earthwork in this section is considered to apply to the re-shaping and grading of soil, rock, and aggregate materials for the purpose of supporting man-made structures. Where earthwork is needed to raise the elevation of the site for the purpose of supporting structures or forming slopes, this is referred to as the placement of structural fill. Where lowering of site elevations is needed prior to the installation of new structures, this is referred to as earthwork excavations.
3. Prior to the start of earthwork operations, the geotechnical study should be referenced to determine the need for subgrade preparation, such as over-excavation or scarification and compaction of unsuitable soils below planned structural fills, slabs on grade, pavements, foundations, and other structures. These required preparations should be discussed in a pre-construction meeting with the pertinent parties, including the geotechnical engineer, inspector, contractors, testing laboratory, surveyor, and others. The preparations should be observed by the inspector or geotechnical engineer representative, and following such subgrade preparation, the geotechnical engineer should observe the prepared subgrade to approve it for the placement of earthwork fills or new structures.
4. Structural fill materials should be relatively free of organic materials, man-made debris, environmentally hazardous materials, and brittle, non-durable aggregate, frozen soil, soil clods or rocks and/or any other materials that can break down and degrade over time.
5. In deeper structural fill zones, expansive soils (greater than 1.5 percent swell at 100 pounds per square foot surcharge) and rock fills (fills containing particles larger than 4 inches and/or containing more than 35 percent gravel larger than ¾-inch diameter or more than 50 percent gravel) may be used with the approval and guidance of the geotechnical report or geotechnical engineer. This may require the placement of geotextiles or other added costs and/or conditions. These conditions may also apply to corrosive soils (less than 2,000 ohm-cm resistivity, more than 50 ppm chloride content, more than 0.1 percent sulfates)
6. For structural fill zones that are closer in depth below planed structures, low expansive materials, and materials with smaller particle size are generally recommended, as directed by the geotechnical report (see criteria above in 5). This may also apply to corrosive soils.
7. For structural fill materials, in general the compaction equipment should be appropriate for the thickness of the loose lift being placed, and the thickness of the loose lift being placed should be at least two times the maximum particle size incorporated in the fill.
8. Fill lift thickness (including bedding) should generally be proportioned to achieve 95 percent or more of a standard proctor (ASTM D689) maximum dry density (MDD) or 90 percent or more of a

modified proctor (ASTM D1557) MDD, depending on the state practices. For subgrades below roadways, the general requirement for soil compaction is usually increased to 100 percent or more of the standard proctor MDD and 95 percent or more of the modified proctor MDD.

9. Soil compaction should be performed at a moisture content generally near optimum moisture content determined by either standard or modified proctor, and ideally within 3 percent below to 1 percent over the optimum for a standard proctor, and from 2 percent below to 2 percent above optimum for a modified proctor.
10. In some instances fill areas are difficult to access. In such cases a low-strength soil-cement slurry can be used in the place of compacted fill soil. In general such fills should be rated to have a 28-day strength of 75 to 125 psi, which in some areas is referred to as a "1-sack" slurry. It should be noted that these materials are wet during placement, and require a period of 2 days (24 hours) to cure before additional fill can be placed above them. Testing of this material can be done using concrete cylinder compression strength testing equipment, but care is needed in removing the test specimens from the molds. Field testing using the ball method, and spread or flow testing is also acceptable.
11. For fills to be placed on slopes, benching of fill lifts is recommended, which may require cutting into existing slopes to create a bench perpendicular to the slope where soil can be placed in a relatively horizontal orientation. For the construction of slopes, the slopes should be over-built and cut back to grade, as the material in the outer portion of the slope may not be well compacted.
12. For subgrade below roadways, runways, railways or other areas to receive dynamic loading, a proofroll of the finished, compacted subgrade should be performed by the geotechnical engineer or inspector prior to the placement of structural aggregate, asphalt or concrete. Proofrolling consists of observing the performance of the subgrade under heavy-loaded equipment, such as full, 4,000 Gallon water truck, loaded tandem-axel dump truck or similar. Areas that exhibit instability during proofroll should be marked for additional work prior to approval of the subgrade for the next stage of construction.
13. Quality control testing should be provided on earthwork. Proctor testing should be performed on each soil type, and one-point field proctors should be used to verify the soil types during compaction testing. If compaction testing is performed with a nuclear density gauge, it should be periodically correlated with a sand cone test for each soil type. Density testing should be performed per project specifications and or jurisdictional requirements, but not less than once per 12 inches elevation of any fill area, with additional tests per 12-inch fill area for each additional 7,500 square-foot section or portion thereof.
14. For earthwork excavations, OSHA guidelines should be referenced for sloping and shoring. Excavations over a depth of 20 feet require a shoring design. In the event excavations are planned near to existing structures, the geotechnical engineer should be consulted to evaluate whether such excavation will call for shoring or underpinning the adjacent structure. Pre-construction and post-construction condition surveys and vibration monitoring might also be helpful to evaluate any potential damage to surrounding structures.

15. Excavations into rock, partially weathered rock, cemented soils, boulders and cobbles, and other hard soil or "hard-pan" materials, may result in slower excavation rates, larger equipment with specialized digging tools, and even blasting. It is also not unusual in these situations for screening and or crushing of rock to be called for. Blasting, hard excavating, and material processing equipment have special safety concerns and are costlier than the use of soil excavation equipment. Additionally, this type of excavation, especially blasting, is known to cause vibrations that should be monitored at nearby structures. As above, a pre-blast and post-blast conditions assessment might also be warranted.

UNDERGROUND PIPELINE – STRUCTURAL BACKFILL

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable State Department of Transportation, the State Department of Environmental Quality, the US Environmental Protection Agency, City and/or County Public Works, Occupational Safety and Health Administration (OSHA), Private Utility Companies, and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered, and in some cases, work may take place to multiple different standards. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Underground pipeline in this section is considered to apply to the installation of underground conduits for water, storm water, irrigation water, sewage, electricity, telecommunications, gas, etc. Structural backfill refers to the activity of restoring the grade or establishing a new grade in the area where excavations were needed for the underground pipeline installation.
3. Prior to the start of underground pipeline installation, a detailed conflict study including as-builts, utility locating, and potholing should be conducted. The geotechnical study should be referenced to determine subsurface conditions such as caving soils, unsuitable soils, shallow groundwater, shallow rock and others. In addition, the utility company responsible for the line also will have requirements for pipe bedding and support as well as other special requirements. Also, if the underground pipeline traverses other properties, rights-of-way, and/or easements etc. (for roads, waterways, dams, railways, other utility corridors, etc.) those owners may have additional requirements for construction.
4. The required preparations above should be discussed in a pre-construction meeting with the pertinent parties, including the geotechnical engineer, inspector, contractors, testing laboratory, surveyor, and other stake holders.
5. For pipeline excavations, OSHA guidelines should be referenced for sloping and shoring. Excavations over a depth of 20 feet require a shoring design. In the event excavations are planned near to existing structures or pipelines, the geotechnical engineer should be consulted to evaluate whether such excavation will call for shoring or supporting the adjacent structure or pipeline. A pre-construction and post-construction condition survey and vibration monitoring might also be helpful to evaluate any potential damage to surrounding structures.
6. Excavations into rock, partially weathered rock, cemented soils, boulders and cobbles, and other hard soil or "hard-pan" materials, may result in slower excavation rates, larger equipment with specialized digging tools, and even blasting. It is also not unusual in these situations for screening and or crushing of rock to be called for. Blasting, hard excavating and material processing equipment have special safety concerns and are costlier than the use soil excavation equipment. Additionally, this type of excavation, especially blasting, is known to cause vibrations that should be monitored at nearby structures. As above, a pre-blast and post-blast conditions assessment might also be warranted.

7. Bedding material requirements vary between utility companies and might depend of the type of pipe material and availability of different types of aggregates in different locations. In general, bedding refers to the material that supports the bottom of the pipe and extends to 1 foot above the top of the pipe. In general, the use of aggregate base for larger diameter pipes (6-inch diameter or more) is recommended lacking a jurisdictionally specified bedding material. Gas lines and smaller diameter lines are often backfilled with fine aggregate meeting the ASTM requirements for concrete sand. In all cases bedding with less than 2,000 ohm-cm resistivity, more than 50 ppm chloride content or more than 0.1 percent sulfates should not be used.
8. Structural backfill materials above the bedding should be relatively free of organic materials, man-made debris, environmentally hazardous materials, frozen material, and brittle, non-durable aggregate, soil clods or rocks and/or any other materials that can break down and degrade over time.
9. In general, the backfill soil requirements will depend on the future use of the land above the buried line, but in most cases, excessive settlement of the pipe trench is not considered advisable or acceptable. As such, the structural backfill compaction equipment should be appropriate for the thickness of the loose lift being placed. The thickness of the loose lift being placed should be at least two times the maximum particle size incorporated in the fill. Care should be taken not to damage the pipe during compaction or compaction testing.
10. Fill lift thickness (including bedding) should generally be proportioned to achieve 95 percent or more of a standard proctor (ASTM D689) maximum dry density (MDD) or 90 percent or more of a modified proctor (ASTM D1557) MDD, depending on the state practices (in general the modified proctor is required in California and for projects in the jurisdiction of the Army Corps of Engineers). For backfills within the upper poritons of roadway subgrades, the general requirement for soil compaction is usually increased to 100 percent or more of the standard proctor MDD and 95 percent or more of the modified proctor MDD.
11. Soil compaction should be performed at a moisture content generally near optimum moisture content determined by either standard or modified proctor, and ideally within 3 percent below to 1 percent over the optimum for a standard proctor, and from 2 percent below to 2 percent above optimum for a modified proctor.
12. In some instances, fill areas are difficult to access. In such cases a low-strength soil-cement slurry can be used in the place of compacted fill soil. In general, such fills should be rated to have a 28-day strength of 75 to 125 psi, which in some areas is referred to as a "1-sack" slurry. It should be noted that these materials are wet and require a period of 2 days (24 hours) to cure before additional fill can be placed above it. Testing of this material can be done using concrete cylinder compression strength testing equipment, but care is needed in removing the test specimens from the molds. Field testing using the ball method and spread or flow testing is also acceptable.
13. Quality control testing should be provided on structural backfill to assist the contractor in meeting project specifications. Proctor testing should be performed on each soil type, and one-point field proctors should be used to verify the soil types during compaction testing. If compaction testing is

performed with a nuclear density gauge, it should be periodically correlated with a sand cone test for each soil type.

14. Density testing should be performed on structural backfill per project specifications and or jurisdictional requirements, but not less than once per 12 inches elevation in each area, and additional tests for each additional 500 linear-foot section or portion thereof.

CAST-IN-PLACE CONCRETE

SLABS-ON-GRADE/STRUCTURES/PAVEMENTS

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Cast-in-place concrete (concrete) in this section is considered to apply to the installation of cast-in-place concrete slabs on grade, including reinforced and non-reinforced slabs, structures, and pavements.
3. In areas where concrete is bearing on prepared subgrade or structural fill soils, testing and approval of this work should be completed prior to the beginning of concrete construction.
4. In locations where a concrete is approved to bear on in-place (native) soil or in locations where approved documented fills have been exposed to weather conditions after approval, a concrete subgrade evaluation should be performed prior to the placement of reinforcing steel and or concrete. This can consist of probing with a "t"-handled rod, borings, penetrometer testing, dynamic cone penetration testing and/or other methods requested by the geotechnical engineer and/or inspector. Where unsuitable, wet, or frozen bearing material is encountered, the geotechnical engineer should be consulted for additional recommendations.
5. Slabs on grade should be placed on a 4-inch thick or more capillary barrier consisting of non-corrosive (more than 2,000 ohm-cm resistivity, less than 50 ppm chloride content and less than 0.1 percent sulfates) aggregate base or open-graded aggregate material. This material should be compacted or consolidated per the recommendations of the structural engineer or otherwise would be covered by the General Considerations for EARTHWORK.
6. Depending on the site conditions and climate, vapor barriers may be required below in-door grade-slabs to receive flooring. This reduces the opportunity for moisture vapor to accumulate in the slab, which could degrade flooring adhesive and result in mold or other problems. Vapor barriers should be specified by the structural engineer and/or architect. The installation of the barrier should be inspected to evaluate the correct product and thickness is used, and that it has not been damaged or degraded.
7. At times when rainfall is predicted during construction, a mud-mat or a thin concrete layer can be placed on prepared and approved subgrades prior to the placement of reinforcing steel or tendons. This serves the purpose of protecting the subgrades from damage once the reinforcement placement has begun.
8. Prior to the placement of concrete, exposed subgrade or base material and forms should be wetted, and form release compounds should be applied. Reinforcement support stands or ties should be

checked. Concrete bases or subgrades should not be so wet that they are softened or have standing water.

9. For a cast-in-place concrete, the form dimensions, reinforcement placement and cover, concrete mix design, and other code requirements should be carefully checked by an inspector before and during placement. The reinforcement should be specified by the structural engineering drawings and calculations.
10. For post-tension concrete, an additional check of the tendons is needed, and a tensioning inspection form should be prepared prior to placement of concrete.
11. For Portland cement pavements, forms an additional check of reinforcing dowels should performed per the design drawings.
12. During placement, concrete should be tested, and should meet the ACI and jurisdictional requirements and mix design targets for slump, air entrainment, unit weight, compressive strength, flexural strength (pavements), and any other specified properties. In general concrete should be placed within 90 minutes of batching at a temperature of less than 90 degrees Fahrenheit. Adding of water to the truck on the jobsite is generally not encouraged.
13. Concrete mix designs should be created by the accredited and jurisdictionally approved supplier to meet the requirements of the structural engineer. In general, a water/cement ratio of 0.45 or less is advisable, and aggregates, cement, flyash, and other constituents should be tested to meet ASTM C-33 standards, including Alkali Silica Reaction (ASR). To further mitigate the possibility of concrete degradation from corrosion and ASR, Type II or V Portland Cement should be used, and fly ash replacement of 25 percent is also recommended. Air entrained concrete should be used in areas where concrete will be exposed to frozen ground or ambient temperatures below freezing.
14. Control joints are recommended to improve the aesthetics of the finished concrete by allowing for cracking within partially cut or grooved joints. The control joints are generally made to depths of about 1/4 of the slab thickness and are generally completed within the first day of construction. The spacing should be laid out by the structural engineer and is often in a square pattern. Joint spacing is generally 5 to 15 feet on-center but this can vary and should be decided by the structural engineer. For pavements, construction joints are generally considered to function as control joints. Post-tensioned slabs generally do not have control joints.
15. Some slabs are expected to meet flatness and levelness requirements. In those cases, testing for flatness and levelness should be completed as soon as possible, usually the same day as concrete placement, and before cutting of control joints if possible. Roadway smoothness can also be measured and is usually specified by the jurisdictional owner if is required.
16. Prior to tensioning of post-tension structures, placement of soil backfills or continuation of building on newly-placed concrete, a strength requirement is generally required, which should be specified by the structural engineer. The strength progress can be evaluated by the use of concrete compressive strength cylinders or maturity monitoring in some jurisdictions. Advancing with backfill, additional concrete work or post-tensioning without reaching strength benchmarks could result in damage and failure of the concrete, which could result in danger and harm to nearby people and property.

17. In general, concrete should not be exposed to freezing temperatures in the first 7 days after placement, which may require insulation or heating. Additionally, in hot or dry, windy weather, misting, covering with wet burlap or the use of curing compounds may be called for to reduce shrinkage cracking and curling during the first 7 days.

FOUNDATIONS

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Foundations in this section are considered to apply to the construction of structural supports which directly transfer loads from man-made structures into the earth. In general, these include shallow foundations and deep foundations. Shallow foundations are generally constructed for the purpose of distributing the structural loads horizontally over a larger area of earth. Some types of shallow foundations (or footings) are spread footings, continuous footings, mat foundations, and reinforced slabs-on-grade. Deep foundations are generally designed for the purpose of distributing the structural loads vertically deeper into the soil by the use of end bearing and side friction. Some types of deep foundations are driven piles, auger-cast piles, drilled shafts, caissons, helical piers, and micro-piles.
3. For shallow foundations, the minimum bearing depth considered should be greater than the maximum design frost depth for the location of construction. This can be found on frost depth maps (ICC), but the standard of practice in the city and/or county should also be consulted. In general the bearing depth should never be less than 18 inches below planned finished grades.
4. Shallow continuous foundations should be sized with a minimum width of 18 inches and isolated spread footings should be a minimum of 24 inches in each direction. Foundation sizing, spacing, and reinforcing steel design should be performed by a qualified structural engineer.
5. The geotechnical engineer will provide an estimated bearing capacity and settlement values for the project based on soil conditions and estimated loads provided by the structural engineer. It is assumed that appropriate safety factors will be applied by the structural engineer.
6. In areas where shallow foundations are bearing on prepared subgrade or structural fill soils, testing and approval of this work should be completed prior to the beginning of foundation construction.
7. In locations where the shallow foundations are approved to bear on in-place (native) soil or in locations where approved documented fills have been exposed to weather conditions after approval, a foundation subgrade evaluation should be performed prior to the placement of reinforcing steel. This can consist of probing with a "t"-handled rod, borings, penetrometer testing, dynamic cone penetration testing and/or other methods requested by the geotechnical engineer and/or inspector. Where unsuitable foundation bearing material is encountered, the geotechnical engineer should be consulted for additional recommendations.
8. For shallow foundations to bear on rock, partially weathered rock, hard cemented soils, and/or boulders, the entire foundation system should bear directly on such material. In this case, the rock surface should be prepared so that it is clean, competent, and formed into a roughly horizontal,

stepped base. If that is not possible, then the entire structure should be underlain by a zone of structural fill. This may require the over-excavation in areas of rock removal and/or hard dig. In general this zone can vary in thickness but it should be a minimum of 1 foot thick. The geotechnical engineer should be consulted in this instance.

9. At times when rainfall is predicted during construction, a mud-mat or a thin concrete layer can be placed on prepared and approved subgrades prior to the placement of reinforcing steel. This serves the purpose of protecting the subgrades from damage once the reinforcing steel placement has begun.
10. For cast-in-place concrete foundations, the excavations dimensions, reinforcing steel placement and cover, structural fill compaction, concrete mix design, and other code requirements should be carefully checked by an inspector before and during placement.

---

11. For deep foundations, the geotechnical engineer will generally provide design charts that provide foundations axial capacity and uplift resistance at various depths given certain-sized foundations. These charts may be based on blow count data from drilling and or laboratory testing. In general safety factors are included in these design charts by the geotechnical engineer.
12. In addition, the geotechnical engineer may provide other soil parameters for use in the lateral resistance analysis. These parameters are usually raw data, and safety factors should be provided by the shaft designer. Sometimes, direct shear and or tri-axial testing is performed for this analysis.
13. In general the spacing of deep foundations is expected to be 6 shaft diameters or more. If that spacing is reduced, a group reduction factor should be applied by the structural engineer to the foundation capacities per FHWA guidelines. The spacing should not be less than 2.5 shaft diameters.
14. For deep foundations, a representative of the geotechnical engineer should be on-site to observe the excavations (if any) to evaluate that the soil conditions are consistent with the findings of the geotechnical report. Soil/rock stratigraphy will vary at times, and this may result in a change in the planned construction. This may require the use of fall protection equipment to perform observations close to an open excavation.
15. For driven foundations, a representative of the geotechnical engineer should be on-site to observe the driving process and to evaluate that the resistance of driving is consistent with the design assumptions. Soil/rock stratigraphy will vary at times and may this may result in a change in the planned construction.
16. For deep foundations, the size, depth, and ground conditions should be verified during construction by the geotechnical engineer and/or inspector responsible. Open excavations should be clean, with any areas of caving and groundwater seepage noted. In areas below the groundwater table, or areas where slurry is used to keep the trench open, non-destructive testing techniques should be used as outlined below.
17. Steel members including structural steel piles, reinforcing steel, bolts, threaded steel rods, etc. should be evaluated for design and code compliance prior to pick-up and placement in the foundation. This includes verification of size, weight, layout, cleanliness, lap-splices, etc. In addition, if non-destructive testing such as crosshole sonic logging or gamma-gamma logging is required,

access tubes should be attached to the steel reinforcement prior to placement, and should be relatively straight, capped at the bottom, and generally kept in-round. These tubes must be filled with water prior to the placement of concrete.

18. In cases where steel welding is required, this should be observed by a certified welding inspector.
19. In many cases, a crane will be used to lower steel members into the deep foundations. Crane picks should be carefully planned, including the ground conditions at placement of outriggers, wind conditions, and other factors. These are not generally provided in the geotechnical report, but can usually be provided upon request.
20. Cast-in-place concrete, grout or other cementations materials should be pumped or distributed to the bottom of the excavation using a tremmie pipe or hollow stem auger pipe. Depending on the construction type, different mix slumps will be used. This should be carefully checked in the field during placement, and consolidation of the material should be considered. Use of a vibrator may be called for.
21. For work in a wet excavation (slurry), the concrete placed at the bottom of the excavation will displace the slurry as it comes up. The upper layer of concrete that has interacted with the slurry should be removed and not be a part of the final product.
22. Bolts or other connections to be set in the top after the placement is complete should be done immediately after final concrete placement, and prior to the on-set of curing.
23. For shafts requiring crosshole sonic logging or gamma-gamma testing, this should be performed within the first week after placement, but not before a 2-day curing period. The testing company and equipment manufacturer should provide more details on the requirements of the testing.
24. Load testing of deep foundations is recommended, and it is often a project requirement. In some cases, if test piles are constructed and tested, it can result in a significant reduction of the amount of needed foundations. The load testing frame and equipment should be sized appropriately for the test to be performed and should be observed by the geotechnical engineer or inspector as it is performed. The results are provided to the structural engineer for approval.

LATERALLY LOADED STRUCTURES - RETAINING WALLS/SLOPES/DEEP FOUNDATIONS/MISCELLANEOUS

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Laterally loaded structures for this section are generally meant to describe structures that are subjected to loading roughly horizontal to the ground surface. Such structures include retaining walls, slopes, deep foundations, tall buildings, box culverts, and other buried or partially buried structures.
3. The recommendations put forth in General Geotechnical Design and Construction Considerations for FOUNDATIONS, CAST-IN-PLACE CONCRETE, EARTHWORK, and SUBGRADE PREPARATION should be reviewed, as they are not all repeated in this section, but many of them will apply to the work. Those recommendations are incorporated by reference herein.
4. Laterally loaded structures are generally affected by overburden pressure, water pressure, surcharges, and other static loads, as well as traffic, seismic, wind, and other dynamic loads. The structural engineer must account for these loads. In addition, eccentric loading of the foundation should be evaluated and accounted for by the structural engineer. The structural engineer is also responsible for applying the appropriate factors of safety to the raw data provided by the geotechnical engineer.
5. The geotechnical report should provide data regarding soil lateral earth pressures, seismic design parameters, and groundwater levels. In the report the pressures are usually reported as raw data in the form of equivalent fluid pressures for three cases. 1. Static is for soil pressure against a structure that is fixed at top and bottom, like a basement wall or box culvert. 2. Active is for soil pressure against a wall that is free to move at the top, like a retaining wall. 3. Passive is for soil that is resisting the movement of the structure, usually at the toe of the wall where the foundation and embedded section are located. The structural engineer is responsible for deciding on safety factors for design parameters and groundwater elevations based on the raw data in the geotechnical report.
6. Generally speaking, direct shear or tri-axial shear testing should be performed for this evaluation in cases of soil slopes or unrestrained soil retaining walls over 6 feet in height or in lower walls in some cases based on the engineer's judgment. For deep foundations and completely buried structures, this testing will be required per the discretion of the structural engineer.
7. For non-confined retaining walls (walls that are not attached at the top) and slopes, a geotechnical engineer should perform overall stability analysis for sliding, overturning, and global stability. For walls that are structurally restrained at the top, the geotechnical engineer does not generally perform this analysis. Internal wall stability should be designed by the structural engineer.

8. Cut slopes into rock should be evaluated by an engineering geologist, and rock coring to identify the orientation of fracture plans, faults, bedding planes, and other features should be performed. An analysis of this data will be provided by the engineering geologist to identify modes of failure including sliding, wedge, and overturning, and to provide design and construction recommendations.
9. For laterally loaded deep foundations that support towers, bridges or other structures with high lateral loads, geotechnical reports generally provide parameters for design analysis which is performed by the structural engineer. The structural engineer is responsible for applying appropriate safety factors to the raw data from the geotechnical engineer.
10. Construction recommendations for deep foundations can be found in the General Geotechnical Design and Construction Considerations-FOUNDATIONS section.
11. Construction of retaining walls often requires temporary slope excavations and shoring, including soil nails, soldier piles and lagging or laid-back slopes. This should be done per OSHA requirements and may require specialty design and contracting.
12. In general, surface water should not be directed over a slope or retaining wall but should be captured in a drainage feature trending parallel to the slope, with an erosion protected outlet to the base of the wall or slope.
13. Waterproofing for retaining walls is generally required on the backfilled side, and they should be backfilled with an 18-inch zone of open graded aggregate wrapped in filter fabric or a synthetic draining product, which outlets to weep holes or a drain at the base of the wall. The purpose of this zone, which is immediately behind the wall is to relieve water pressures from building behind the wall.
14. Backfill compaction around retaining walls and slopes requires special care. Lighter equipment should be considered, and consideration to curing of cementitious materials used during construction will be called for. Additionally, if mechanically stabilized earth walls are being constructed, or if tie-backs are being utilized, additional care will be necessary to avoid damaging or displacing the materials. Use of heavy or large equipment, and/or beginning of backfill prior to concrete strength verification can create dangers to construction and human safety. Please refer to the General Geotechnical Design and Construction Considerations-CAST-IN-PLACE CONCRETE section. These concerns will also apply to the curing of cell grouting within reinforced masonry walls.
15. Usually safety features such as handrails are designed to be installed at the top of retaining walls and slopes. Prior to their installation, workers in those areas will need to be equipped with appropriate fall protection equipment.

EXCAVATION AND DEWATERING

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Excavation and Dewatering for this section are generally meant to describe structures that are intended to create stable, excavations for the construction of infrastructure near to existing development and below the groundwater table.
3. The recommendations put forth in General Geotechnical Design and Construction Considerations for LATERALLY LOADED STRUCTURES, FOUNDATIONS, CAST-IN-PLACE CONCRETE, EARTHWORK, and SUBGRADE PREPARATION should be reviewed, as they are not all repeated in this section, but many of them will apply to the work. Those recommendations are incorporated by reference herein.
4. The site excavations will generally be affected by overburden pressure, water pressure, surcharges, and other static loads, as well as traffic, seismic, wind, and other dynamic loads. The structural engineer must account for these loads as described in Section 5.2 of this report. In addition, eccentric loading of the foundation should be evaluated and accounted for by the structural engineer. The structural engineer is also responsible for applying the appropriate factors of safety to the raw data provided by the geotechnical engineer.
5. The geotechnical report should provide data regarding soil lateral earth pressures, seismic design parameters, and groundwater levels. In the report the pressures are usually reported as raw data in the form of equivalent fluid pressures for three cases. 1. Static is for soil pressure against a structure that is fixed at top and bottom, like a basement wall or box culvert. 2. Active is for soil pressure against a wall that is free to move at the top, like a retaining wall. 3. Passive is for soil that is resisting the movement of the structure, usually at the toe of the wall where the foundation and embedded section are located. The structural engineer is responsible for deciding on safety factors for design parameters and groundwater elevations based on the raw data in the geotechnical report.
6. The parameters provided above are based on laboratory testing and engineering judgement. Since numerous soil layers with different properties will be encountered in a large excavation, assumptions and judgement are used to generate the equivalent fluid pressures to be used in design. Factors of safety are not included in those numbers and should be evaluated prior to design.
7. Groundwater, if encountered will dramatically change the stability of the excavation. In addition, pumping of groundwater from the bottom of the excavation can be difficult and costly, and it can result in potential damage to nearby structures if groundwater drawdown occurs. As such, we recommend that groundwater monitoring be performed across the site during design and prior to construction to assist in the excavation design and planning.

8. Groundwater pumping tests should be performed if groundwater pumping will be needed during construction. The pumping tests can be used to estimate drawdown at nearby properties, and also will be needed to determine the hydraulic conductivity of the soil for the design of the dewatering system.
9. For excavation stabilization in granular and dense soil, the use of soldier piles and lagging is recommended. The soldier pile spacing, and size should be determined by the structural engineer based on the lateral loads provided in the report. In general, the spacing should be more than two pile diameters, and less than 8 feet. Soldier piles should be advanced 5 feet or more below the base of the excavation. Passive pressures from Section 5.2 can be used in the design of soldier piles for the portions of the piles below the excavation.
10. If the piles are drilled, they should be grouted in-place. If below the groundwater table, the grouting should be accomplished by tremmie pipe, and the concrete should be a mix intended for placement below the groundwater table. For work in a wet excavation, the concrete placed at the bottom of the excavation will displace the water as it comes up. The upper layer of concrete that has interacted with the water should be removed and not be a part of the final product. Lagging should be specially designed timber or other lagging. The temporary excavation will need to account for seepage pressures at the toe of the wall as well as hydrostatic forces behind the wall.
11. Depending on the loading, tie back anchors and/or soil nails may be needed. These should be installed beyond the failure envelope of the wall. This would be a plane that is rotated upward 55 degrees from horizontal. The strength of the anchors behind this plane should be considered, and bond strength inside the plane should be ignored. If friction anchors are used, they should extend 10 feet or more beyond the failure envelope. Evaluation of the anchor length and encroachment onto other properties, and possible conflicts with underground utilities should be carefully considered. Anchors are typically installed 25 to 40 degrees below horizontal. The capacity of the anchors should be checked on 10% of locations by loading to 200% of the design strength. All should be loaded to 120% of design strength, and should be locked off at 80%
12. The shoring and tie backs should be designed to allow less than ½ inch of deflection at the top of the excavation wall, where the wall is within an imaginary 1:1 line extending downward from the base of surrounding structures. This can be expanded to 1 inch of deflection if there is no nearby structure inside that plane. An analysis of nearby structures to locate their depth and horizontal position should be conducted prior to shored excavation design.
13. Assuming that the excavations will encroach below the groundwater table, allowances for drainage behind and through the lagging should be made. The drainage can be accomplished by using an open-graded gravel material that is wrapped in geotextile fabric. The lagging should allow for the collected water to pass through the wall at select locations into drainage trenches below the excavation base. These trenches should be considered as sump areas where groundwater can be pumped out of the excavation.
14. The pumped groundwater needs to be handled properly per jurisdictional guidelines.

15. In general, surface water should not be directed over a slope or retaining wall, but should be captured in a drainage feature trending parallel to the slope, with an erosion protected outlet to the base of the wall or slope.
16. Safety features such as handrails or barriers are to be designed to be installed at the top of retaining walls and slopes. Prior to their installation, workers in those areas will need to be equipped with appropriate fall protection equipment.

Waterproofing and Back Drainage

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Waterproofing and Back drainage structures for this section are generally meant to describe permanent subgrade structures that are planned to be below the historic high groundwater elevation of 20 feet below existing grades.
3. The recommendations put forth in General Geotechnical Design and Construction Considerations for FOUNDATIONS, CAST-IN-PLACE CONCRETE, EARTHWORK, and SUBGRADE PREPARATION should be reviewed, as they are not all repeated in this section, but many of them will apply to the work. Those recommendations are incorporated by reference herein.
4. In general, surface water should not be directed over a slope or retaining wall, but should be captured in a drainage feature trending parallel to the slope, with an erosion protected outlet to the base of the wall or slope.
5. Waterproofing for retaining walls is generally required on the backfilled side, and they should be backfilled with an 18-inch zone of open graded aggregate wrapped in filter fabric or a synthetic draining product, which outlets to weep holes or a drain at the base of the wall. The purpose of this zone, which is immediately behind the wall is to relieve water pressures from building behind the wall.
6. For the basement walls on this site, sump pumps will be needed to reduce the build-up of water in the basement. The design should be for a historic high groundwater level of 20 feet bgs. The pumping system should be designed to keep the slab and walls relatively dry so that mold, efflorescence, and other detrimental effects to the concrete structure will not result.
7. Backfill compaction around retaining walls and slopes requires special care. Lighter equipment should be considered, and consideration to curing of cementitious materials used during construction will be called for. Additionally, if mechanically stabilized earth walls are being constructed, or if tie-backs are being utilized, additional care will be necessary to avoid damaging or displacing the materials. Use of heavy or large equipment, and/or beginning of backfill prior to concrete strength verification can create dangers to construction and human safety. Please refer to the General Geotechnical Design and Construction Considerations-CAST-IN-PLACE CONCRETE section. These concerns will also apply to the curing of cell grouting within reinforced masonry walls.

CHEMICAL TREATMENT OF SOIL

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, State Department of Environmental Quality, the US Environmental Protection Agency, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Chemical treatment of soil for this section is generally meant to describe the process of improving soil properties for a specific purpose, using cement or chemical lime.
3. A mix design should be performed by the geotechnical engineer to help it meet the specific strength, plasticity index, durability, and/or other desired properties. The mix design should be performed using the proposed chemical lime or cement proposed for use by the contractor, along with samples of the site soil that are taken from the material to be used in the process.
4. For the mix design the geotechnical engineer should perform proctor testing to determine optimum moisture content of the soil, and then mix samples of the soil at 3 percent above optimum moisture content with varying concentrations of lime or cement. The samples will be prepared and cured per ASTM standards, and then after 7-days for curing, they will be tested for compression strength. Durability testing goes on for 28 days.
5. Following this testing, the geotechnical engineer will provide a recommended mix ratio of cement or chemical lime in the geotechnical report for use by the contractor. The geotechnical engineer will generally specify a design ratio of 2 percent more than the minimum to account for some error during construction.
6. Prior to treatment, the in-place soil moisture should be measured so that the correct amount of water can be used during construction. Work should not be performed on frozen ground.
7. During construction, special considerations for construction of treated soils should be followed. The application process should be conducted to prevent the loss of the treatment material to wind which might transport the materials off site, and workers should be provided with personal protective equipment for dust generated in the process.
8. The treatment should be applied evenly over the surface, and this can be monitored by use of a pan placed on the subgrade. This can also be tested by preparing test specimens from the in-place mixture for laboratory testing.
9. Often, after or during the chemical application, additional water may be needed to activate the chemical reaction. In general, it should be maintained at about 3 percent or more above optimum moisture. Following this, mixing of the applied material is generally performed using specialized equipment.

10. The total amount of chemical provided can be verified by collecting batch tickets from the delivery trucks, and the depth of the treatment can be verified by digging of test pits, and the use of reagents that react with lime and or cement.
11. For the use of lime treatment, compaction should be performed after a specified amount of time has passed following mixing and re-grading. For concrete, compaction should be performed immediately after mixing and re-grading. In both cases, some swelling of the surface should be expected. Final grading should be performed the following day of the initial work for lime treatment, and within 2 to 4 hours for soil cement.
12. Quality control testing of compacted treated subgrades should be performed per the recommendations of the geotechnical report, and generally in accordance with General Geotechnical Design and Construction Considerations - EARTHWORK

PAVING

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Paving for this section is generally meant to describe the placement of surface treatments on travel-ways to be used by rubber-tired vehicles, such as roadways, runways, parking lots, etc.
3. The geotechnical engineer is generally responsible for providing structural analysis to recommend the thickness of pavement sections, which can include asphalt, concrete pavements, aggregate base, cement or lime treated aggregate base, and cement or lime treated subgrades.
4. The civil engineer is generally responsible for determining which surface finishes and mixes are appropriate, and often the owner, general contractor and/or other party will decide on lift thickness, the use of tack coats and surface treatments, etc.
5. The geotechnical engineer will generally be provided with the planned traffic loading, as well as reliability, design life, and serviceability factors by the jurisdiction, traffic engineer, designer, and/or owner. The geotechnical study will provide data regarding soil resiliency and strength. A pavement modeling software is generally used to perform the analysis for design, however, jurisdictional minimum sections also must be considered, as well as construction considerations and other factors.
6. The geotechnical report report will generally provide pavement section thicknesses if requested.
7. For construction of overlays, where new pavement is being placed on old pavement, an evaluation of the existing pavement is needed, which should include coring the pavement, evaluation of the overall condition and thickness of the pavement, and evaluation of the pavement base and subgrade materials.
8. In general, the existing pavement is milled and treated with a tack coat prior to the placement of new pavement for the purpose of creating a stronger bond between the old and new material. This is also a way of removing aged asphalt and helping to maintain finished grades closer to existing conditions grading and drainage considerations.
9. If milling is performed, a minimum of 2 inches of existing asphalt should be left in-place to reduce the likelihood of equipment breaking through the asphalt layer and destroying its integrity. After milling and before the placement of tack coat, the surface should be evaluated for cracking or degradation. Cracked or degraded asphalt should be removed, spanned with geosynthetic reinforcement, or be otherwise repaired per the direction of the civil and or geotechnical engineer prior to continuing construction. Proofrolling may be requested.

10. For pavements to be placed on subgrade or base materials, the subgrade and base materials should be prepared per the General Geotechnical Design and Construction Considerations – EARTHWORK section.
11. Following the proofrolling as described in the General Geotechnical Design and Construction Considerations – EARTHWORK section, the application of subgrade treatment, base material, and paving materials can proceed per the recommendations in the geotechnical report and/or project plans. The placement of pavement materials or structural fills cannot take place on frozen ground.
12. The placement of aggregate base material should conform to the jurisdictional guidelines. In general the materials should be provided by an accredited supplier, and the material should meet the standards of ASTM C-33. Material that has been stockpiled and exposed to weather including wind and rain should be retested for compliance since fines could be lost. Frozen material cannot be used.
13. The placement of asphalt material should conform to the jurisdictional guidelines. In general the materials should be provided by an accredited supplier, and the material should meet the standards of ASTM C-33. The material can be placed in a screed by end-dumping, or it can be placed directly on the paving surface. The temperature of the mix at placement should generally be on the order of 300 degrees Fahrenheit at time of placement and screeding.
14. Compaction of the screeded asphalt should begin as soon as practical after placement, and initial rolling should be performed before the asphalt has cooled significantly. Compaction equipment should have vibratory capabilities, and should be of appropriate size and weight given the thickness of the lift being placed and the sloping of the ground surface.
15. In cold and/or windy weather, the cooling of the screeded asphalt is a quality issue, so preparations should be made to perform screeding immediately after placement, and compaction immediately after screeding.
16. Quality control testing of the asphalt should be performed during placement to verify compaction and mix design properties are being met and that delivery temperatures are correct. Results of testing data from asphalt laboratory testing should be provided within 24 hours of the paving.

SITE GRADING AND DRAINAGE

1. In general, construction should proceed per the governing jurisdictional guidelines for the project site, including but not limited to the applicable American Concrete Institute (ACI), International Code Council (ICC), State Department of Transportation, State Department of Environmental Quality, the US Environmental Protection Agency, City and/or County, Army Corps of Engineers, Federal Aviation, Occupational Safety and Health Administration (OSHA), and any other governing standard details and specifications. In areas where multiple standards are applicable the more stringent should be considered. Work should be performed by qualified, licensed contractors with experience in the specific type of work in the area of the site.
2. Site grading and drainage for this section is generally meant to describe the effect of new construction on surface hydrology, which impacts the flow of rainfall or other water running across, onto or off-of, a newly constructed or modified development.
3. This section does not apply to the construction of site grading and drainage features. Recommendations for the construction of such features are covered in General Geotechnical Design and Construction Considerations for Earthwork – Structural Fills section and Underground Pipeline Installation – Backfill section.
4. In general, surface water flows should be directed towards storm drains, natural channels, retention or detention basins, swales, and/or other features specifically designed to capture, store, and or transmit them to specific off-site outfalls.
5. The surface water flow design is generally performed by a site civil engineer, and it can be impacted by hydrology, roof lines, and other site structures that do not allow for water to infiltrate into the soil, and that modify the topography of the site.
6. Soil permeability, density, and strength properties are relevant to the design of storm drain systems, including dry wells, retention basins, swales, and others. These properties are usually only provided in a geotechnical report if specifically requested, and recommendations will be provided in the geotechnical report in those cases.
7. Structures or site features that are not a part of the surface water drainage system should not be exposed to surface water flows, standing water or water infiltration. In general, roof drains and scuppers, exterior slabs, pavements, landscaping, etc. should be constructed to drain water away from structures and foundations. The purpose of this is to reduce the opportunity for water damage, erosion, and/or altering of structural soil properties by wetting. In general, a 5 percent or more slope away from foundations, structural fills, slopes, structures, etc. should be maintained.
8. Special considerations should be used for slopes and retaining walls, as described in the General Geotechnical Design and Construction Considerations - LATERALLY LOADED STRUCTURES section.
9. Additionally, landscaping features including irrigation emitters and plants that require large amounts of water should not be placed near to new structures, as they have the potential to alter soil moisture states. Changing of the moisture state of soil that provides structural support can lead to damage to the supported structures.