



ADDENDUM

ADDENDUM NO: ONE (1)

PROJECT NAME: Hayden Business Park Development – Phase 1

OWNER: Town of Hayden
178 West Jefferson Ave
Hayden, CO 81639-0190

ENGINEER: Sunrise Engineering, Inc.
201 Commerce Drive, Unit 1
Fort Collins, Colorado 80524

DATE: July 21, 2023

ATTACHMENT: Revised Bid Schedule 1 and Bid Schedule 2

Landscaping Plans

Revised Sheet GR01 and Sheet GR02

Prebid Attendees

Offsite Sewer Geotechnical Report

CDOT settlement requirements

CDOT As-builts and Pointman database requirements.

This Addendum #1 shall become part of the plans, specifications, and contract documents of the above-referenced project, and all provisions of the contract shall apply hereto.

Bidders shall acknowledge receipt of all addenda in the space provided in the bid documents.

The following questions and responses apply to Bid Schedule 1 – Onsite Improvements

Question #	Issue	Answer
1	Include Landscaping Plans in Addenda	See attached Landscaping Plans
2	General Conditions - Retainage	Add the following to Section 00800 - Supplemental General Conditions. Delete the first two bulleted items in Section 00700 19.1.3, Payment to Owner and replace with "the Owner shall deduct and retain five (5) percent of the amount of each payment until acceptance of all work covered by the Contract Documents".
3	When is the project deadline?	The Contractor will be provided 400 calendar days to complete construction. The Town anticipates issuing a Notice of Award Mid-August, 2024
4	What are the bid requirements for project award?	The Town will Award Bid Schedules to the lowest responsible bidder. Please see revised Bid Schedule adding provisions for a lump sum deduct to each Bid Schedule based on Award of both bid schedules. Bidders bidding both projects and also electing to include a deduct shall indicate how the lump sum deduct would be applied to the Contract – i.e., apply 100% of deduct to mobilization line item.
5	Is there a Geotech report for the onsite work?	Yes, a geotechnical report for the onsite work is included in the appendix of the project manual.
6	Who manages the traffic control permits for the work on the Airport property?	Contractor is responsible to obtain traffic control permits from Routt County.
7	Are there any FAA requirements?	No

8	When would the notice to proceed be issued?	Project Award is contingent upon receipt of an Army Corps of Engineer's permit. The anticipated Notice of Award is mid-August, 2023.
9	Can the item for dirt quantities be changed from a lump sum to a CY quantity?	<p>No, the payment will remain as Lump Sum. Contractor will be paid per the payment schedule listed in SP 02202.4.1. Contractor shall be responsible for providing a survey surface to prove grading tolerances per SP 02202.3.7.2. Owner and Engineer reserve the right to reduce payment if final overlot grading exceeds these tolerances.</p> <p>Contractor shall be responsible for their own assumptions regarding the quantities shown on GR01 and GR02 (ex: Fill Factor is shown as 1.2).</p> <p>No additional payment shall be made for any material imported/exported from the site.</p>
10	Is a 1.1 shrink factor adequate?	Based on discussions with Bidders and following in-house review, it has been decided to use a fill factor of 1.2. See revised quantities in attached sheets GR01 and GR02.
11	Can the spoils from the off-site sewer line be trucked to the on-site job?	No, the spoils from the off-site sewer will be hauled to a location that will be determined as a part of Addendum #2.
12	Is there a place for spoils to be disposed of?	The spoils will be used in Overlot Grading.
13	Were the spoils from utility installation accounted for in the cut/fill balance?	Yes, utility spoils were accounted for in the cut/fill balance for on-site water and sewer utilities. See replacement sheets GR01 and GR02.
14	Is there an engineer estimate and can the contractors see it?	Yes, there is an engineer's estimate. No, the Town will not share this information at this time.
15	Was topsoil accounted for in cut/fill? Where does material go?	Yes, replace sheets GR01 and GR02 with the attached revised grading plans.

The following questions and responses apply to Bid Schedule 2

Question #	Issue	Answer
1	General Conditions - Retainage	Add the following to Section 00800 - Supplemental General Conditions. Delete the first two bulleted items in Section 00700 19.1.3, Payment to Owner and replace with "the Owner shall deduct and retain five (5) percent of the amount of each payment until acceptance of all work covered by the Contract Documents".
2	Is there a Geotech report for the offsite sewer?	Yes, see attached.
3	When is the project deadline?	The Contractor will be provided 400 calendar days to complete construction. The Town anticipates issuing a Notice of Award Mid-August, 2024.
4	What are the bid requirements for project award?	The Town will Award Bid Schedules to the lowest responsible bidder. Please see revised Bid Schedule adding provisions for a lump sum deduct to each Bid Schedule based on Award of both bid schedules. Bidders electing to include a deduct shall detail how lump sum deduct would be applied – i.e., apply 100% of deduct to mobilization line item.
5	Who manages the CDOT traffic control permit?	Contractor.
6	Are there any temporary easements for utilities?	Yes, in general, the interceptor sewer has a 20' permanent easement and a 50' temporary construction easement except as otherwise noted on the project plans.
7	Is there availability for dewatering through the existing wastewater collection system?	The Town will allow the use of their existing wastewater collection system for dewatering in the months of August through April. Water shall be compliant with filtration requirements of CDPHE approved dewatering permit.
8	Is it a requirement that the interceptor line be completed this year?	No

9	When would the notice to proceed be issued?	Contract award is contingent on obtaining an Army Corps of Engineer's permit. Anticipated Notice of Award is mid-August, 2023.
10	Can the spoils from the off-site sewer line be trucked to the on-site job?	No. Excess soils are the property of the Town and, the Town is finalizing an Agreement to stockpile offsite sewer soils on Phase 2 of the Business Park. Additional information will be provided when available.
11	Is there an engineer estimate for Contractors to review?	Yes, there is an engineer's estimate. No, the Town will not share this information at this time.
12	Is there a staging area for material (pipe, manholes, etc.)?	The Town is working to obtain a staging area adjacent to the area between station 53+00 and 55+00 and will provide additional details when available.
13	Will there be vacuum testing on the manholes?	No.
14	Is there a CDOT contact that would help in expediting the permits?	Yes, the CDOT contact is Joel Berschauer, Region 3 Utility and Special Use Project Manager. joel.berschauer@state.co.us.
15	Does CDOT require control points along the surface of the alignment of the bore to check for settlement?	CDOT will require checking for settlement. Also see the attached information pertaining to As-builts and Pointman database requirements for utility installation recording.
16	What are CDOT's requirements for weather and traffic control?	There are no absolute requirements. Contractors are encouraged to discuss this project with CDOT. The general "dry road" requirement will be addressed by CDOT on a case-by-case situation based on CDOT's ability to remove snow without impacting crews and traffic control devices. CDOT will require work to be shut down for the season as soon as snow is not melting. Usually in the Hayden area this happens anytime after November 15th.
17	What are limitations/Work requirements while constructing between Hwy 40 going south through existing gravel operations?	Sunrise has asked these questions but has not received a response but will provide additional details when available.
18	Do the plan sets require SDR 26 pipe at depths greater than 15'	No, the plan sets do not currently show this. However, Engineer agrees with the recommendation. Contractors shall utilize SDR 26 sewer pipe whenever depths exceed 15'

END

BID SCHEDULE 1 - ON-SITE IMPROVEMENTS

CONTRACT FOR: Hayden Business Park Development Phase I

The undersigned Bidder, having examined and determined the scope of the Contract Documents, hereby proposes to perform the work described herein for the following unit prices or lump sum amounts.

Note: 1. Bids shall include sales tax and all other applicable taxes and fees 2. All bids shall be checked for errors. If errors are made, unit prices shall govern and corrections will be made according to the unit price and totals will be revised to reflect the corrections.						
No.	Meas. & Pmt. Reference	Item	Quantity	Unit	Unit Price	Amount
GENERAL CONDITIONS						
1	SP02000	Mobilization	1	LS		
2	SP02000	Pre-Construction DVD	1	LS		
3	SP02890	EDA Project Signage	1	LS		
OVERLOT GRADING, STORM DRAINAGE, AND ROADWAYS - MISCELLANEOUS						
4	SP 01560	Construction Staking	1	LS		
5	SP 02005	Traffic Control	1	LS		
6	SP02200	Groundwater Dewatering	1	LS		
OVERLOT GRADING						
7	SP 01522	Erosion and Sediment Control	1	LS		
8	SP 02202	Clear and Grub	1	LS		
9	SP 02202	Overlot Grading	1	LS		
STORM DRAINAGE SYSTEM						
10	SP 02105	Riprap	190	CY		
11	SP 02226	24" Corrugated Metal Culvert Pipe	260	LF		
12	SP 02226	12" Corrugated Metal Culvert Pipe	360	LF		
13	SP 02226	Culvert End Section	10	EA		
14	SP 02260	Concrete Outlet Structure	2	EA		
ROADWAY IMPROVEMENTS						
15	SP02105	10" Class 6 Untreated Base Course	22530	SY		
16	SP02500	Removal of Bituminous Surfacing at CR 51A	1900	SY		
17	SP02511	5" Hot Plant Mix Bituminous Surfacing	21790	SY		
18	SP02520	Pavement Sawing at CR 51A	1400	LF		
19	SP02600	4" White Line	1190	LF		
20	SP02600	6" White Line	5570	LF		
21	SP02600	12" White Line	60	LF		
22	SP02600	4" Yellow Line	7410	LF		
23	SP02600	White Lane Reduction Arrow Symbol	4	EA		
24	SP02600	White Right Turn Arrow Symbol	1	EA		
25	SP02600	White Left Turn Arrow Symbol	6	EA		
26	SP02600	White "ONLY" Symbol	7	EA		

27	SP02890	Sign & Post Installation Only	14	EA		
ON-SITE WATER AND WASTEWATER - MISCELLANEOUS						
28	SP 01560	Construction Staking	1	LS		
29	SP 02005	Traffic Control	1	LS		
ON-SITE WATER IMPROVEMENTS						
30	02020	Subsurface Investigation	8	Hours		
31	SP02520	Pavement Sawing at CR 51A	70	LF		
32	SP02500	Removal of Bituminous Surface at CR51A	250	SY		
33	SP 02224	Connection to Existing Water Line at CR 51A	1	EA		
34	SP 02208	Lean Concrete at CR51A	40	CY		
35	SP02500	Replacement of Bituminous Surface at CR51A	250	SY		
36	SP 02202	Unsuitable Subgrade Repair	1500	CY		
37	SP02200	Dewatering - Water System Improvements	1	LS		
38	SP 02105	Imported trench or structural backfill material	1000	CY		
39	SP 02222	12" PVC Pipe C900 Waterline	2880	LF		
40	SP 02222	4" PVC Pipe C900 Waterline	980	LF		
41	02250	Clay Cutoff Wall	5	EA		
42	SP 15230	4" Gate Valve	13	EA		
43	SP 15230	12" Gate Valve	16	EA		
44	SP 15230	Fire Hydrant Assembly	7	EA		
45	SP 15234	3/4" Service Connection	13	EA		
46	SP 15234	3/4" Service Lateral	13	EA		
ON-SITE WASTEWATER IMPROVEMENTS						
47	SP02200	Dewatering - Wastewater System Improvement	1	LS		
48	SP 02224	8" SDR 35 PVC Sewer Pipe	2550	LF		
49	SP 02200	Solid Rock Excavation	1000	CY		
50	SP 02224	48" Manhole (up to 8' depth)	18	EA		
51	SP 02224	48" Manhole Barrel (>8' Depth)	52	VLF		
52	SP 02224	4" SDR 35 PVC Service Stub	940	LF		
53	SP 02224	Connection to Existing Sewer Line	1	EA		
54	02250	Clay Cutoff Wall	5	EA		
ON-SITE LANDSCAPING AND IRRIGATION						
CONSTRUCTION STAKING						
55	SP 01560	Construction Staking	1	LS		
LANDSCAPING IMPROVEMENTS						
56	SP 02900	Fertilizer	44	ACRE		
57	SP 02900	Mulch	44	ACRE		
58	SP 02900	Tackifier	44	ACRE		
59	SP 02900	Bonded Fiber Matrix	44	ACRE		
60	SP 02910	Topsoil Replacement	212960	SY		
61	SP 02910	Deciduous Trees (2.5" caliber)	105	EA		
62	SP 02910	Evergreen Trees (8' Height)	20	EA		
63	SP 02910	Ornamental Trees (2" caliber)	35	EA		
64	SP 02910	Deciduous and Evergreen Shrubs (#5 Cont.)	750	EA		
65	SP 02910	Ornamental Grasses (#1 Cont.)	500	EA		
66	SP 02910	Planting Beds	10000	SF		
67	SP 02910	Native Grass Seed Mix	320000	SF		
68	SP 02910	Landscape Steel Edger	500	LF		
69	SP 02900	Field Seeding	44	ACRE		
70		Trail Construction	1	ls		
IRRIGATION IMPROVEMENTS						

71	SP 02915	Complete Irrigation System	1	LS		
72		Irrigation (Planting Bed)	110000	SF		
73		Irrigation (Native Seed)	320000	SF		
74	SP 15230	1" Backflow Preventer	2	EA		
75	SP 15234	1" Service Connection	2	EA		
76	SP 15234	1" Service Lateral	60	LF		
77	SP 15234	Install 1" Curb Stop Box	2	EA		
Bid Schedule 1 Total						
Deduct to this Project if also awarded Bid Schedule 2						
Bid Schedule 1 Total with deduct if also awarded Bid Schedule 2						

The undersigned Bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

Seal (if bid is by Corporation)

Respectfully Submitted:

Bidder: _____

Signature _____

Title: _____

License No. _____

Address: _____

Date: _____

BID SCHEDULE 2 - OFF-SITE IMPROVEMENTS

CONTRACT FOR: Hayden Business Park Development Phase I

The undersigned Bidder, having examined and determined the scope of the Contract Documents, hereby proposes to perform the work described herein for the following unit prices or lump sum amounts.

Note: 1. Bids shall include sales tax and all other applicable taxes and fees 2. All bids shall be checked for errors. If errors are made, unit prices shall govern and corrections will be made according to the unit price and totals will be revised to reflect the corrections.						
No.	Meas. & Pmt. Reference	Item	Quantity	Unit	Unit Price	Amount
GENERAL CONDITIONS						
1	SP02000	Mobilization	1	LS		
2	SP02000	Pre-Construction DVD	1	LS		
3	SP02890	EDA Project Signage	1	LS		
HIGHWAY 40 INTERCEPTOR SEWER SYSTEM - MISCELLANEOUS						
4	SP 01560	Construction Staking	1	LS		
5	SP 02005	Traffic Control	1	LS		
6	SP02200	Groundwater Dewatering	1	LS		
HIGHWAY 40 INTERCEPTOR SEWER						
7	SP 02224	Connection to Existing Sewer Line at Shelton Avenue	1	EA		
8	SP 02224	12" SDR 35 PVC	6060	LF		
9	SP 02224	12" SDR 35 PVC (Extra Depth)	2740	LF		
10	SP 02200	Solid Rock Excavation	1000	CY		
11	SP 02105	Imported trench or structural backfill material	1000	CY		
12	SP 02224	48" Manhole (up to 8' depth)	34	EA		
13	SP 02224	48" Manhole Barrel (>8' Depth)	121	VLF		
14	02250	Clay Cutoff Wall	18	EA		
15	02315	Casing Pipe Installation by Boring and Jacking - West End Hwy 40 Crossing (24" Steel)	80	LF		
16	02315	Casing Pipe Installation by Boring and Jacking - East End Hwy 40 Crossing (24" Steel)	80	LF		
17	SP02500	Removal and Replacement of Bituminous Surfaces	500	SY		
18	SP 02202	Unsuitable Subgrade Repair	1500	CY		
19	SP02500	Shelton Return Ditch Improvements	1	LS		
20	SP02500	Walker Ditch Bypass pumping and Restoration	1	LS		
21	SP02500	Gravel road restoration	3000	SY		
22	SP02500	Shelton Ditch Bypass pumping and Restoratio	1	LS		

23	SP 02208	Lean Concrete at Roadway Crossings	100	CY		
24	SP02520	Pavement Sawcut	50	LF		
OFF-SITE SEWER SYSTEM, HIGHWAY 40 TO BUSINESS PARK INTERCEPTOR SEWER - MISCELLANEOUS						
25	SP 01560	Construction Staking	1	LS		
26	SP02200	Groundwater Dewatering	1	LS		
HIGHWAY 40 TO BUSINESS PARK INTERCEPTOR SEWER						
27	SP 02224	10" SDR 35 PVC	2520	LF		
28	SP 02224	10" SDR 35 PVC (Extra Depth)	900	LF		
29	SP 02224	8" SDR 35 PVC	240	LF		
30	SP 02224	48" Manhole (up to 8' depth)	15	EA		
31	SP 02224	48" Manhole Barrel (>8' Depth)	40	VLF		
32	02250	Clay Cutoff Wall	7	EA		
Bid Schedule 2 Total						
Deduct to this Project if also awarded Bid Schedule 1						
Bid Schedule 2 Total with deduct if also awarded Bid Schedule 1						

The undersigned Bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

Seal (if bid is by Corporation)

Respectfully Submitted:

Bidder: _____

Signature _____

Title: _____

License No. _____

Address: _____

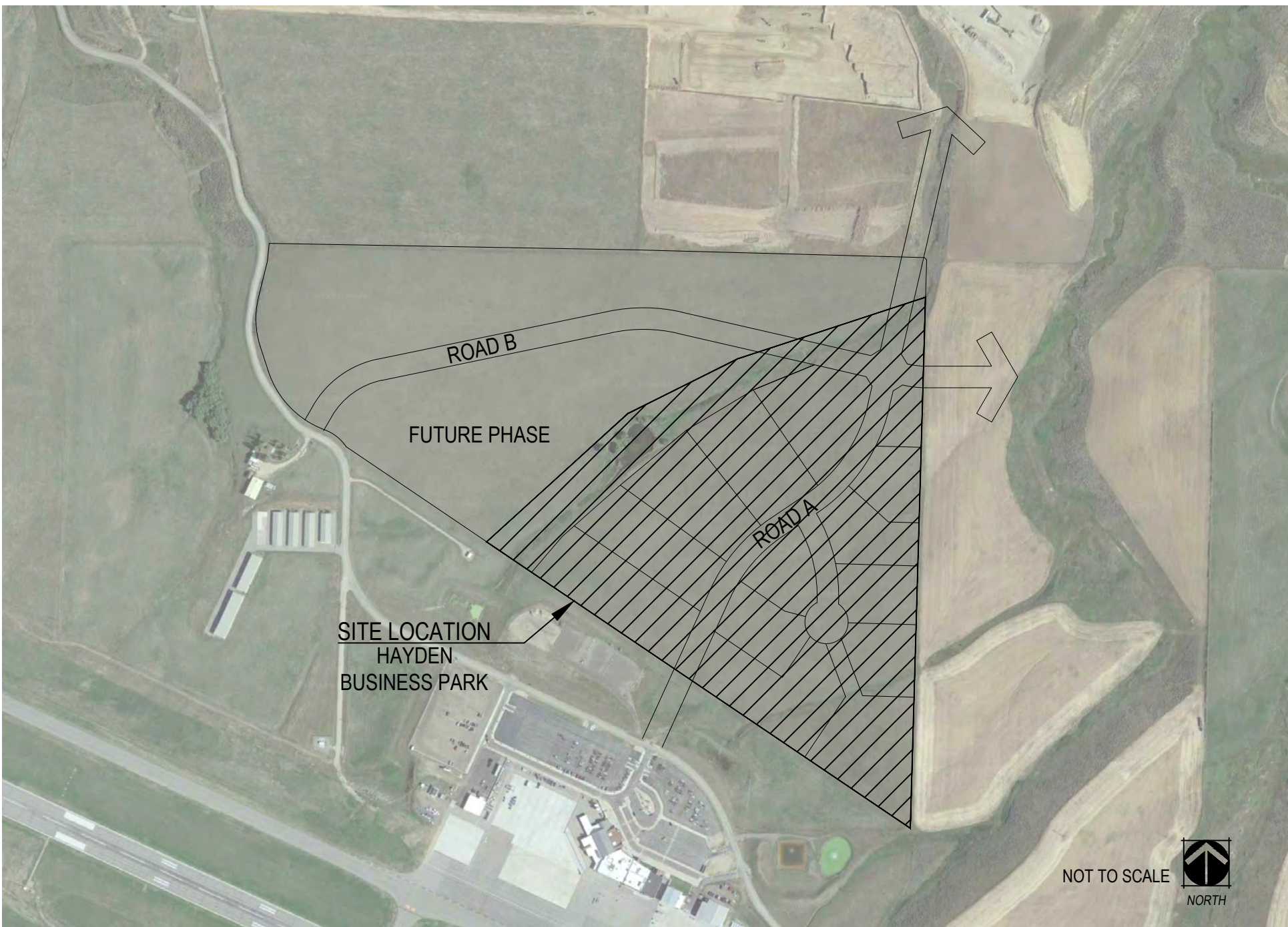
Date: _____

NORTHWEST COLORADO BUSINESS PARK

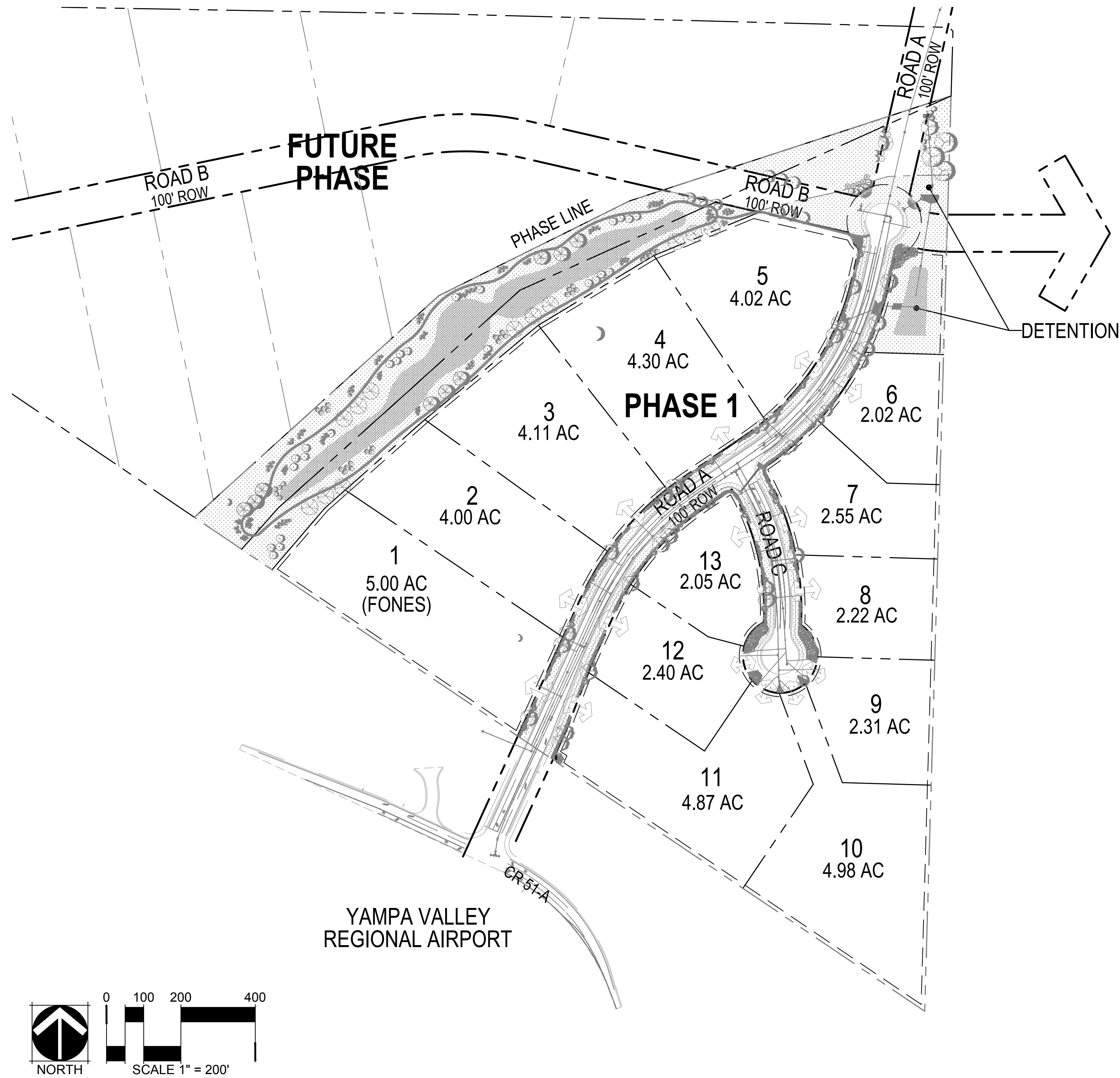
FILING NO. 2
FINAL LANDSCAPE PLAN

A SUBDIVISION OF PARCEL A, NORTHWEST COLORADO BUSINESS PARK SUBDIVISION LOCATED
IN PORTIONS OF E1/2 OF THE SE 1/4 SECTION 11 AND W1/2 OF THE SW1/4 SECTION 12 T6N R88W,
6TH P.M., TOWN OF HAYDEN, COUNTY OF ROUTT, STATE OF COLORADO

VICINITY MAP



OVERALL LANDSCAPE PLAN



APPLICANT / LAND OWNER

TOWN OF HAYDEN
PO BOX 190
178 WEST JEFFERSON
HAYDEN, CO 81639
970.276.3741
CONTACT: MATHEW MENDISCO

PLANNER / LANDSCAPE ARCHITECT

NORRIS DESIGN
CONTACT: ANTHONY YORK
409 MAIN STREET, SUITE 207
FRISCO, CO 80443
PO BOX 2320
PHONE: 970.368.7068

CIVIL ENGINEER / SURVEYOR

SUNRISE ENGINEERING
3001 SOUTH LINCOLN AVE
STEAMBOAT SPRINGS, CO 80487
970.875.6719
CONTACT: CORT NICKEL

NORTHWEST COLORADO BUSINESS PARK
FINAL LANDSCAPE PLAN
HAYDEN, COLORADO

OWNER:
TOWN OF HAYDEN
PO BOX 190
178 W. JEFFERSON
HAYDEN, CO 81639
970.276.3741

NOT FOR
CONSTRUCTION

DATE:
7-7-2023
FINAL PLAT RESUBMITTAL

COVER
SHEET

CS1

SHEET INDEX

CS1	COVER SHEET
L001	LANDSCAPE NOTES
L002	PLANTING LIST
L101-L105	LANDSCAPE PLAN
L201	PLANTING DETAILS
L202	SITE DETAILS
L203	TYPICAL CROSS-SECTIONS
L204	TYPICAL LOT LAYOUTS

GENERAL NOTES

1. THESE PLANS SHALL NOT BE UTILIZED FOR CONSTRUCTION OR PERMITTING UNLESS STATED FOR SUCH USE IN THE TITLE BLOCK.
2. DRAWINGS ARE INTENDED TO BE PRINTED ON 24" X 36" PAPER. PRINTING THESE DRAWINGS AT A DIFFERENT SIZE WILL IMPACT THE SCALE. VERIFY THE GRAPHIC SCALE BEFORE REFERENCING ANY MEASUREMENTS ON THESE SHEETS. THE RECIPIENT OF THESE DRAWINGS SHALL BE RESPONSIBLE FOR ANY ERRORS RESULTING FROM INCORRECT PRINTING, COPYING, OR ANY OTHER CHANGES THAT ALTER THE SCALE OF THE DRAWINGS.
3. VERIFY ALL PLAN DIMENSIONS PRIOR TO START OF CONSTRUCTION. NOTIFY THE OWNER'S REPRESENTATIVE TO ADDRESS ANY QUESTIONS OR CLARIFY ANY DISCREPANCIES.
4. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
5. SUBMIT A CHANGE ORDER FOR APPROVAL FOR ANY CHANGES TO WORK SCOPE RESULTING FROM FIELD CONDITIONS OR DIRECTION BY OWNER'S REPRESENTATIVE WHICH REQUIRE ADDITIONAL COST TO THE OWNER PRIOR TO PERFORMANCE OF WORK.
6. THE CONTRACTOR SHALL PROVIDE A STAKED LAYOUT OF ALL SITE IMPROVEMENTS FOR INSPECTION BY THE OWNER'S REPRESENTATIVE AND MAKE MODIFICATIONS AS REQUIRED. ALL LAYOUT INFORMATION IS AVAILABLE IN DIGITAL FORMAT FOR USE BY THE CONTRACTOR.
7. IF A GEOTECHNICAL SOILS REPORT IS NOT AVAILABLE AT THE TIME OF CONSTRUCTION, NORRIS DESIGN RECOMMENDS A REPORT BE AUTHORIZED BY THE OWNER AND THAT ALL RECOMMENDATIONS OF THE REPORT ARE FOLLOWED DURING CONSTRUCTION. THE CONTRACTOR SHALL USE THESE CONTRACT DOCUMENTS AS A BASIS FOR THE BID. IF THE OWNER ELECTS TO PROVIDE A GEOTECHNICAL REPORT, THE CONTRACTOR SHALL REVIEW THE REPORT AND SUBMIT AN APPROPRIATE CHANGE ORDER TO THE OWNER'S REPRESENTATIVE IF ADDITIONAL COSTS ARE REQUESTED.
8. CONTRACTOR SHALL CONFIRM THAT SITE CONDITIONS ARE SIMILAR TO THE PLANS, WITHIN TOLERANCES STATED IN THE CONTRACT DOCUMENTS, AND SATISFACTORY TO THE CONTRACTOR PRIOR TO START OF WORK. SHOULD SITE CONDITIONS BE DIFFERENT THAN REPRESENTED ON THE PLANS OR UNSATISFACTORY TO THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND FURTHER DIRECTION.
9. CONTRACTOR IS RESPONSIBLE TO PAY FOR, AND OBTAIN, ANY REQUIRED APPLICATIONS, PERMITTING, LICENSES, INSPECTIONS AND METERS ASSOCIATED WITH WORK.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO ANY VIOLATIONS OR NON-CONFORMANCE WITH THE PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS, JURISDICTIONAL CODES, AND REGULATORY AGENCIES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL UTILITY LOCATES PRIOR TO ANY EXCAVATION. REFER TO ENGINEERING UTILITY PLANS FOR ALL PROPOSED UTILITY LOCATIONS AND DETAILS. NOTIFY OWNER'S REPRESENTATIVE IF EXISTING OR PROPOSED UTILITIES INTERFERE WITH THE ABILITY TO PERFORM WORK.
12. UNLESS IDENTIFIED ON THE PLANS FOR DEMOLITION OR REMOVAL, THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT OR EXISTING LANDSCAPE, ADJACENT OR EXISTING PAVING, OR ANY PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR'S OPERATIONS DURING INSTALLATION, ESTABLISHMENT OR DURING THE SPECIFIED MAINTENANCE PERIOD. ALL DAMAGES SHALL BE REPAIRED TO PRE-CONSTRUCTION CONDITIONS AS DETERMINED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL BE RESPONSIBLE FOR LOGGING ANY DAMAGES PRIOR TO START OF CONSTRUCTION AND DURING THE CONTRACT PERIOD.
13. ALL WORK SHALL BE CONFINED TO THE AREA WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS. ANY AREAS OR IMPROVEMENTS DISTURBED OUTSIDE THESE LIMITS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. IN THE EVENT THE CONTRACTOR REQUIRES A MODIFICATION TO THE CONSTRUCTION LIMITS, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER'S REPRESENTATIVE PRIOR TO ANY DISTURBANCE OUTSIDE OF THE LIMITS OF WORK.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN TO THE APPROPRIATE JURISDICTIONAL AGENCIES AND THE OWNER'S REPRESENTATIVE IF THEIR WORK AND OPERATIONS AFFECT OR IMPACT THE PUBLIC RIGHTS-OF-WAY. OBTAIN APPROVAL PRIOR TO ANY WORK WHICH AFFECTS OR IMPACTS THE PUBLIC RIGHTS-OF-WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THIS REQUIREMENT DURING THE CONTRACT PERIOD.
16. SIGHT TRIANGLES AND SIGHT LINES SHALL REMAIN UNOBSTRUCTED BY EQUIPMENT, CONSTRUCTION MATERIALS, PLANT MATERIAL OR ANY OTHER VISUAL OBSTACLE DURING THE CONTRACT PERIOD AND AT MATURITY OF PLANTS PER LOCAL JURISDICTIONAL REQUIREMENTS. NO PLANT MATERIAL OTHER THAN GROUND COVER IS ALLOWED TO BE PLANTED ADJACENT TO FIRE HYDRANTS AS STIPULATED BY JURISDICTIONAL REQUIREMENTS.
17. COORDINATE SITE ACCESS, STAGING, STORAGE AND CLEANOUT AREAS WITH OWNER'S REPRESENTATIVE.
18. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY SAFETY FENCING AND BARRIERS

- AROUND ALL IMPROVEMENTS SUCH AS WALLS, PLAY STRUCTURES, EXCAVATIONS, ETC. ASSOCIATED WITH THEIR WORK UNTIL SUCH FACILITIES ARE COMPLETELY INSTALLED PER THE PLANS, SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THEIR MATERIAL STOCK PILES AND WORK FROM VANDALISM, EROSION OR UNINTENDED DISTURBANCE DURING THE CONSTRUCTION PERIOD AND UNTIL FINAL ACCEPTANCE IS ISSUED.
 20. THE CONTRACTOR SHALL KNOW, UNDERSTAND AND ABIDE BY ANY STORM WATER POLLUTION PREVENTION PLAN (SWPPP) ASSOCIATED WITH THE SITE. IF A STORM WATER POLLUTION PREVENTION PLAN IS NOT PROVIDED BY THE OWNER'S REPRESENTATIVE, REQUEST A COPY BEFORE PERFORMANCE OF ANY SITE WORK.
 21. MAINTAIN ANY STORM WATER MANAGEMENT FACILITIES THAT EXIST ON SITE FOR FULL FUNCTIONALITY. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ANY NEW STORM WATER MANAGEMENT FACILITIES THAT ARE IDENTIFIED IN THE SCOPE OF WORK TO FULL FUNCTIONALITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER FOR FAILURE TO MAINTAIN STORM WATER MANAGEMENT FACILITIES DURING THE CONTRACT PERIOD.
 22. THE CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS AND ALL OTHER POLLUTANTS FROM EXITING THE SITE OR ENTERING THE STORM SEWER SYSTEM DURING ALL DEMOLITION OR CONSTRUCTION OPERATIONS THAT ARE PART OF THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THESE REQUIREMENTS DURING THEIR CONTRACTED COURSE OF WORK.
 23. THE CONTRACTOR SHALL BE RESPONSIBLE TO PREVENT ANY IMPACTS TO ADJACENT WATERWAYS, WETLANDS, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS RESULTING FROM WORK DONE AS PART OF THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THESE STANDARDS DURING THEIR CONTRACTED COURSE OF WORK.
 24. THE CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL INSURE THAT ALL LOADS OF CONSTRUCTION MATERIAL IMPORTED TO OR EXPORTED FROM THE PROJECT SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF MATERIAL DURING TRANSPORT. TRANSPORTATION METHODS ON PUBLIC RIGHT-OF WAYS SHALL CONFORM TO JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FINES OR PENALTIES ASSESSED TO THE OWNER RELATING TO THESE REQUIREMENTS.
 25. THE CLEANING OF EQUIPMENT IS PROHIBITED AT THE JOB SITE UNLESS AUTHORIZED BY THE OWNER'S REPRESENTATIVE IN A DESIGNATED AREA. THE DISCHARGE OF WATER, WASTE CONCRETE, POLLUTANTS, OR OTHER MATERIALS SHALL ONLY OCCUR IN AREAS DESIGNED FOR SUCH USE AND APPROVED BY THE OWNER'S REPRESENTATIVE.
 26. THE CLEANING OF CONCRETE EQUIPMENT IS PROHIBITED AT THE JOB SITE EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. THE DISCHARGE OF WATER CONTAINING WASTE CONCRETE IN THE STORM SEWER IS PROHIBITED.
 27. OPEN SPACE SWALES: IF SWALES ARE EXISTING ON SITE AND ARE NOT INTENDED TO BE MODIFIED AS PART OF THE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN THE CONVEYANCE OF WATER WITHIN THE SWALES DURING THE CONTRACT PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DIVERSION OR PUMPING OF WATER IF REQUIRED TO COMPLETE WORK. ANY SWALES DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED/RESTORED TO THEIR ORIGINAL CONDITION. IF THE SWALE NEEDS TO BE DISTURBED OR MODIFIED FOR ANY REASON, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DISTURBANCE.
 28. DETENTION AND WATER QUALITY PONDS: IF DETENTION PONDS AND WATER QUALITY PONDS ARE EXISTING ON SITE AND ARE NOT INTENDED TO BE MODIFIED AS PART OF THE PLANS, THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE PONDS, DRAINAGE STRUCTURES AND SPILLWAYS DURING CONSTRUCTION. ALL PONDS, DRAINAGE STRUCTURES AND SPILLWAYS SHALL BE MAINTAINED IN OPERABLE CONDITIONS AT ALL TIMES. ANY POND OR SPILLWAY AREAS DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED/RESTORED TO THEIR ORIGINAL CONDITION. IF THE POND NEEDS TO BE DISTURBED OR MODIFIED FOR ANY REASON, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO DISTURBANCE.
 29. MAINTENANCE ACCESS BENCHES: IF MAINTENANCE BENCHES OR ACCESS ROADS EXIST ON SITE AND ARE NOT INTENDED TO BE MODIFIED AS PART OF THE PLANS, THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE BENCHES OR ACCESS ROADS DURING CONSTRUCTION. ANY BENCHES OR ACCESS ROADS DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED/RESTORED TO THEIR ORIGINAL CONDITION. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL EXISTING BENCHES AND ACCESS ROADS DURING THE CONSTRUCTION PERIOD. IF ACCESS NEEDS TO BE BLOCKED FOR ANY REASON, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INTERRUPTION OF ACCESS.
 30. LOCAL, STATE AND FEDERAL JURISDICTIONAL REQUIREMENTS, RESTRICTIONS OR PROCEDURES SHALL SUPERSEDE THESE PLANS, NOTES AND SPECIFICATIONS WHEN MORE STRINGENT. NOTIFY THE OWNER'S REPRESENTATIVE IF CONFLICTS OCCUR.

LANDSCAPE NOTES

1. THE CONTRACTOR SHALL FOLLOW THE LANDSCAPE PLANS AND SPECIFICATIONS AS CLOSELY AS POSSIBLE. ANY SUBSTITUTION OR ALTERATION SHALL NOT BE ALLOWED WITHOUT APPROVAL OF THE OWNER'S REPRESENTATIVE. OVERALL PLANT QUANTITY AND QUALITY SHALL BE CONSISTENT WITH THE PLANS.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES. GRAPHIC QUANTITIES TAKES PRECEDENCE OVER WRITTEN QUANTITIES.
3. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO INSPECT AND TAG ALL PLANT MATERIAL PRIOR TO SHIPPING TO THE SITE. IN ALL CASES, THE OWNER'S REPRESENTATIVE MAY REJECT PLANT MATERIAL AT THE SITE IF MATERIAL IS DAMAGED, DISEASED, OR DECLINING IN HEALTH AT THE TIME OF ONSITE INSPECTIONS OR IF THE PLANT MATERIAL DOES NOT MEET THE MINIMUM SPECIFIED STANDARD IDENTIFIED ON THE PLANS AND IN THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE FOR INSPECTION AND APPROVAL OF ALL MATERIALS AND PRODUCTS PRIOR TO INSTALLATION.
4. THE OWNER'S REPRESENTATIVE MAY ELECT TO UPSIZE PLANT MATERIAL AT THEIR DISCRETION BASED ON SELECTION, AVAILABILITY, OR TO ENHANCE SPECIFIC AREAS OF THE PROJECT. THE CONTRACTOR SHALL VERIFY PLANT MATERIAL SIZES WITH OWNER'S REPRESENTATIVE PRIOR TO PURCHASING, SHIPPING OR STOCKING OF PLANT MATERIALS. SUBMIT CHANGE ORDER REQUEST TO OWNER'S REPRESENTATIVE FOR APPROVAL IF ADDITIONAL COST IS REQUESTED BY THE CONTRACTOR PRIOR TO INSTALLATION. RE-STOCKING CHARGES WILL NOT BE APPROVED IF THE CONTRACTOR FAILS TO SUBMIT A REQUEST FOR MATERIAL CHANGES.
5. THE CONTRACTOR SHALL WARRANTY ALL CONTRACTED WORK AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION HAS BEEN ISSUED BY THE OWNER'S REPRESENTATIVE FOR THE ENTIRE PROJECT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS OR SPECIFICATIONS.
6. IN NO CASE SHALL IRRIGATION BE EMITTED WITHIN THE MINIMUM DISTANCE FROM BUILDING OR WALL FOUNDATIONS AS STIPULATED IN THE GEOTECHNICAL REPORT. ALL IRRIGATION DISTRIBUTION LINES, HEADS AND EMITTERS SHALL BE KEPT OUTSIDE THE MINIMUM DISTANCE AWAY FROM ALL BUILDING AND WALL FOUNDATIONS AS STIPULATED IN THE GEOTECHNICAL REPORT.
7. LANDSCAPE MATERIAL LOCATIONS SHALL HAVE PRECEDENCE OVER IRRIGATION MAINLINE AND LATERAL LOCATIONS. COORDINATE INSTALLATION OF IRRIGATION EQUIPMENT SO THAT IT DOES NOT INTERFERE WITH THE PLANTING OF TREES OR OTHER LANDSCAPE MATERIAL.
8. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING POSITIVE DRAINAGE EXISTS IN ALL LANDSCAPE AREAS. SURFACE DRAINAGE ON LANDSCAPE AREAS SHALL NOT FLOW TOWARD STRUCTURES AND FOUNDATIONS. MAINTAIN SLOPE AWAY FROM FOUNDATIONS PER THE GEOTECHNICAL REPORT RECOMMENDATIONS. ALL LANDSCAPE AREAS BETWEEN WALKS AND CURBS SHALL DRAIN FREELY TO THE CURB UNLESS OTHERWISE IDENTIFIED ON THE GRADING PLAN. IN NO CASE SHALL THE GRADE, TURF THATCH, OR OTHER LANDSCAPE MATERIALS DAM WATER AGAINST WALKS. MINIMUM SLOPES ON LANDSCAPE AREAS SHALL BE 2%; MAXIMUM SLOPE SHALL BE 25% UNLESS SPECIFICALLY IDENTIFIED ON THE PLANS OR APPROVED BY THE OWNER'S REPRESENTATIVE.
9. PRIOR TO INSTALLATION OF PLANT MATERIALS, AREAS THAT HAVE BEEN COMPACTED OR DISTURBED BY CONSTRUCTION ACTIVITY SHALL BE THOROUGHLY LOOSENED TO A DEPTH OF 3-6" AND AMENDED PER SPECIFICATIONS.
10. ALL LANDSCAPED AREAS ARE TO RECEIVE ORGANIC SOIL PREPARATION AS NOTED IN THE TECHNICAL SPECIFICATIONS.
11. TREES SHALL NOT BE LOCATED IN DRAINAGE SWALES, DRAINAGE AREAS, OR UTILITY EASEMENTS. CONTACT OWNER'S REPRESENTATIVE FOR RELOCATION OF PLANTS IN QUESTIONABLE AREAS PRIOR TO INSTALLATION.
12. AT SEED AREA BOUNDARIES ADJACENT TO EXISTING NATIVE AREAS, OVERLAP ABUTTING NATIVE AREAS BY THE FULL WIDTH OF THE SEEDER.
13. EXISTING TURF AREAS THAT ARE DISTURBED DURING CONSTRUCTION, ESTABLISHMENT AND THE MAINTENANCE PERIOD SHALL BE RESTORED WITH NEW SOD TO MATCH EXISTING TURF SPECIES. DISTURBED NATIVE AREAS WHICH ARE TO REMAIN SHALL BE OVER SEEDED AND RESTORED WITH SPECIFIED SEED MIX.
14. CONTRACTOR SHALL OVER SEED ALL MAINTENANCE OR SERVICE ACCESS BENCHES AND ROADS WITH SPECIFIED SEED MIX UNLESS OTHERWISE NOTED ON THE PLANS.
15. ALL SEEDED SLOPES EXCEEDING 25% IN GRADE (4:1) SHALL RECEIVE EROSION CONTROL BLANKETS. PRIOR TO INSTALLATION, NOTIFY OWNER'S REPRESENTATIVE FOR APPROVAL OF LOCATION AND ANY ADDITIONAL COST IF A CHANGE ORDER IS NECESSARY.
16. WHEN COMPLETE, ALL GRADES SHALL BE WITHIN +/- 1/8" OF FINISHED GRADES AS SHOWN ON THE PLANS.
17. THE CONTRACTOR IS EXPECTED TO KNOW AND UNDERSTAND THE TOWN AND COUNTY SPECIFICATIONS FOR LANDSCAPE AND IRRIGATION. IN CASES OF DISCREPANCIES THE HIGHER OF THE TWO STANDARDS SHALL HAVE PRECEDENCE.
18. THE DEVELOPER, HIS SUCCESSORS AND ASSIGNS SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE AND REPLACEMENT OF ALL IMPROVEMENTS SHOWN OR INDICATED ON THE APPROVED LANDSCAPE PLAN ON FILE IN THE PLANNING DEPARTMENT.
19. AS DIRECTED ON PLANS, ALL TREES, SHRUBS & ORNAMENTAL GRASSES SHALL BE DRIP IRRIGATED. AREAS OF NATIVE SEED SHALL BE TEMPORARILY SPRAY IRRIGATED.

LAYOUT NOTES

1. WRITTEN DIMENSIONS WILL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
2. SHOULD SITE CONDITIONS BE DIFFERENT THAN WHAT IS INDICATED ON THE DRAWINGS CONTACT THE LANDSCAPE ARCHITECT IMMEDIATELY FOR CLARIFICATION.
3. THE CONTRACTOR SHALL OBTAIN, AT HIS EXPENSE, ALL PERMITS WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
4. THE CONTRACTOR SHALL INSTALL SLEEVING FOR IRRIGATION IMPROVEMENTS PRIOR TO INSTALLING CONCRETE FLATWORK. REFER TO IRRIGATION PLANS.
5. ALL WORK SHALL BE CONFINED TO THE AREA WITHIN THE CONSTRUCTION LIMITS AS SHOWN ON THE PLANS. ANY AREAS OR IMPROVEMENTS DISTURBED OUTSIDE THESE LIMITS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. IN THE EVENT THE CONTRACTOR REQUIRES A MODIFICATION TO THE CONSTRUCTION LIMITS, WRITTEN PERMISSION MUST BE OBTAINED FROM THE LANDSCAPE ARCHITECT PRIOR TO ANY DISTURBANCE OUTSIDE OF THE LIMITS OF WORK. SEE TECHNICAL SPECIFICATIONS.

PLANT SCHEDULE

<u>DECIDUOUS TREES</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>WATER USE</u>
AC GL	24	ACER GLABRUM	ROCKY MOUNTAIN MAPLE	B & B	2.5" CAL.	LOW
CE SN	10	CELTIS OCCIDENTALIS 'WESTERN'	WESTERN HACKBERRY	B & B	2.5" CAL.	LOW
GD KE	12	GYMNOCLADUS DIOICA	KENTUCKY COFFEETREE	B & B	2.5" CAL.	LOW
PO IE	9	POPULUS ANGUSTIFOLIA	NARROWLEAF COTTONWOOD	B & B	2.5" CAL.	VERY LOW
PO TR	13	POPULUS TREMULOIDES	QUAKING ASPEN	B & B	2" CAL.	LOW
PO AC	12	POPULUS X ACUMINATA	LANCELEAF COTTONWOOD	B & B	2.5" CAL.	VERY LOW
UM AM	15	ULMUS AMERICANA	AMERICAN ELM	B & B	2.5" CAL.	LOW

<u>EVERGREEN TREES</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>WATER USE</u>
PI PI	3	PINUS EDULIS	PINYON PINE	B & B	6' HT.	LOW

<u>ORNAMENTAL TREES</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>WATER USE</u>
MA SS	18	MALUS X 'SPRING SNOW'	SPRING SNOW CRAB APPLE	B & B	2" CAL.	LOW
PR VI	14	PRUNUS VIRGINIANA 'CANADA RED'	CANADA RED CHOKECHERRY	B & B	2" CAL.	LOW

<u>SHRUBS</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>WATER USE</u>
AM SE	26	AMELANCHIER ALNIFOLIA	SERVICEBERRY	CONT.	#5	MOD
AR TR	90	ARTEMISIA TRIDENTATA	TALL WESTERN SAGE	CONT.	#5	LOW
CR RE	59	CORNUS SERICEA	RED TWIG DOGWOOD	CONT.	#5	MOD
CR FA	59	CORNUS STOLONIFERA 'FLAVIRAMEA'	YELLOW TWIG DOGWOOD	CONT.	#5	MOD
JU MO	29	JUNIPERUS COMMUNIS 'MONDAP'	ALPINE CARPET® COMMON JUNIPER	CONT.	#5	LOW
QU GA	33	QUERCUS GAMBELII	GAMBEL OAK	CONT.	#5	VERY LOW
RI AL	71	RIBES ALPINUM	ALPINE CURRANT	CONT.	#5	LOW
RO WO	24	ROSA WOODSII	MOUNTAIN ROSE	CONT.	#5	LOW
SAL ARC	22	SALIX ARCTICA	ARCTIC WILLOW	CONT.	#5	LOW
SY OR	25	SYMPHORICARPOS ORBICULATUS	CORALBERRY	CONT.	#5	LOW
SY MI	48	SYRINGA PATULA 'MISS KIM'	MISS KIM KOREAN LILAC	CONT.	#5	MOD
VIB AM	39	VIBURNUM TRILOBUM	AMERICAN CRANBERRYBUSH	CONT.	#5	MOD

<u>ORNAMENTAL GRASSES</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>WATER USE</u>
DE CE	157	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS	CONT.	#1	LOW
MI GR	126	MISCANTHUS SINENSIS 'GRACILLIMUS'	MAIDEN GRASS	CONT.	#1	LOW
SO NU	133	SORGHASTRUM NUTANS	INDIAN GRASS	CONT.	#1	LOW

<u>PERENNIALS</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>ROOT</u>	<u>SIZE</u>	<u>WATER USE</u>
NE LT	54	NEPETA X 'PSFIKE' TM	LITTLE TRUDY CATMINT	CONT.	#1	LOW

SHORT DRY GRASS SEED MIXTURE

COMMON NAME	% OF TOTAL	LBS. PER 1,000 S.F.
HARD FESCUE, VNS	30%	0.6 LBS.
CREEPING RED FESCUE, VNS	30%	0.6 LBS.
SHEEP FESCUE, MEKLENBERGER	25%	0.5 LBS.
CANADA BLUEGRASS, RUBENS	10%	0.2 LBS.
CANBY BLUGRASS, CANBAR	5%	0.1 LBS.
TOTAL	100%	2.0 LBS.

- SLOPES OVER 3:1 SHALL BE HAYED AND TACKIFIED OR NETTED
- SPREAD SEED AT A RATE OF 3-4 LBS PER 1,000 SF

RIPARIAN GRASS SEED MIXTURE

COMMON NAME	% OF TOTAL	LBS. PER 1,000 S.F.
CANADA WILDRYE	25%	0.50 LBS.
TUFTED HAIRGRASS	20%	0.40 LBS.
BIG BLUESTEM	15%	0.30 LBS.
SWITCHGRASS	15%	0.30 LBS.
TICKLEGRASS	15%	0.30 LBS.
BALTIC RUSH	5%	0.10 LBS.
SPIKERUSH	2.5%	0.05 LBS.
ALKALI SACATON	2.5%	0.05 LBS.
TOTAL	100%	2.0 LBS.

- SLOPES OVER 3:1 SHALL BE HAYED AND TACKIFIED OR NETTED
- SPREAD SEED AT A RATE OF 6 LBS PER 1,000 SF

REFERENCE NOTES SCHEDULE

	LANDSCAPE MATERIALS							
CODE	DESCRIPTION	MANUFACTURER	CONTACT	PRODUCT NAME	COLOR / FINISH	SIZE / DIMENSIONS	DETAIL	NOTES
M-101	STEEL EDGER							
M-102	ROCK MULCH	PIONEER SAND OR LOCAL SUPPLIER (OR APPROVED EQUAL)	N/A	BLUE MESA GRANITE	NATURAL	3/4-1" DIA. 4" MIN. DEPTH, SEE PLANS FOR AREA		TO BE INSTALLED IN ALL LANDSCAPE BEDS OVER SPECIFIED LANDSCAPE BARRIER FABRIC, SEE SPECIFICATIONS
M-103	NATIVE SEED	WESTERN NATIVE SEED (OR APPROVED EQUAL)	N/A	HIGH ALTITUDE GRASS MIX (WATER CONSERVING)	NATURAL	SEE PLANS FOR AREA, APPLICATION RATE: 2 LBS PER 1,000 SQUARE FEET (25 LBS PER ACRE)		SEE SPECIFICATIONS FOR SEEDING AND SOIL PREPARATION
M-104	RIPARIAN SEED	WESTERN NATIVE SEED (OR APPROVED EQUAL)	N/A	HIGH PLAINS RIPARIAN SEED MIX	NATURAL	SEE PLANS FOR AREA, APPLICATION RATE: 2 LBS PER 1,000 SQUARE FEET (25 LBS PER ACRE)		SEE SPECIFICATIONS FOR SEEDING AND SOIL PREPARATION
M-105	CRUSHER FINES	PIONEER SANDS (OR APPROVED EQUAL)	N/A	CRUSHER FINES	TAN	4" DEPTH, 1/2"-1" DIA.		INSTALL PER MANUFACTURER'S SPECIFICATIONS



09 Main Street
Suite 207
P.O. Box 2320
Aspen, CO 80443
970.368.7068
iris-design.com

NORTHWEST COLORADO BUSINESS PARK

FINAL LANDSCAPE PLAN

HAYDEN, COLORADO

OWNER:
TOWN OF HAYDEN
PO BOX 190
178 W. JEFFERSON
HAYDEN, CO 81639
970.276.3741

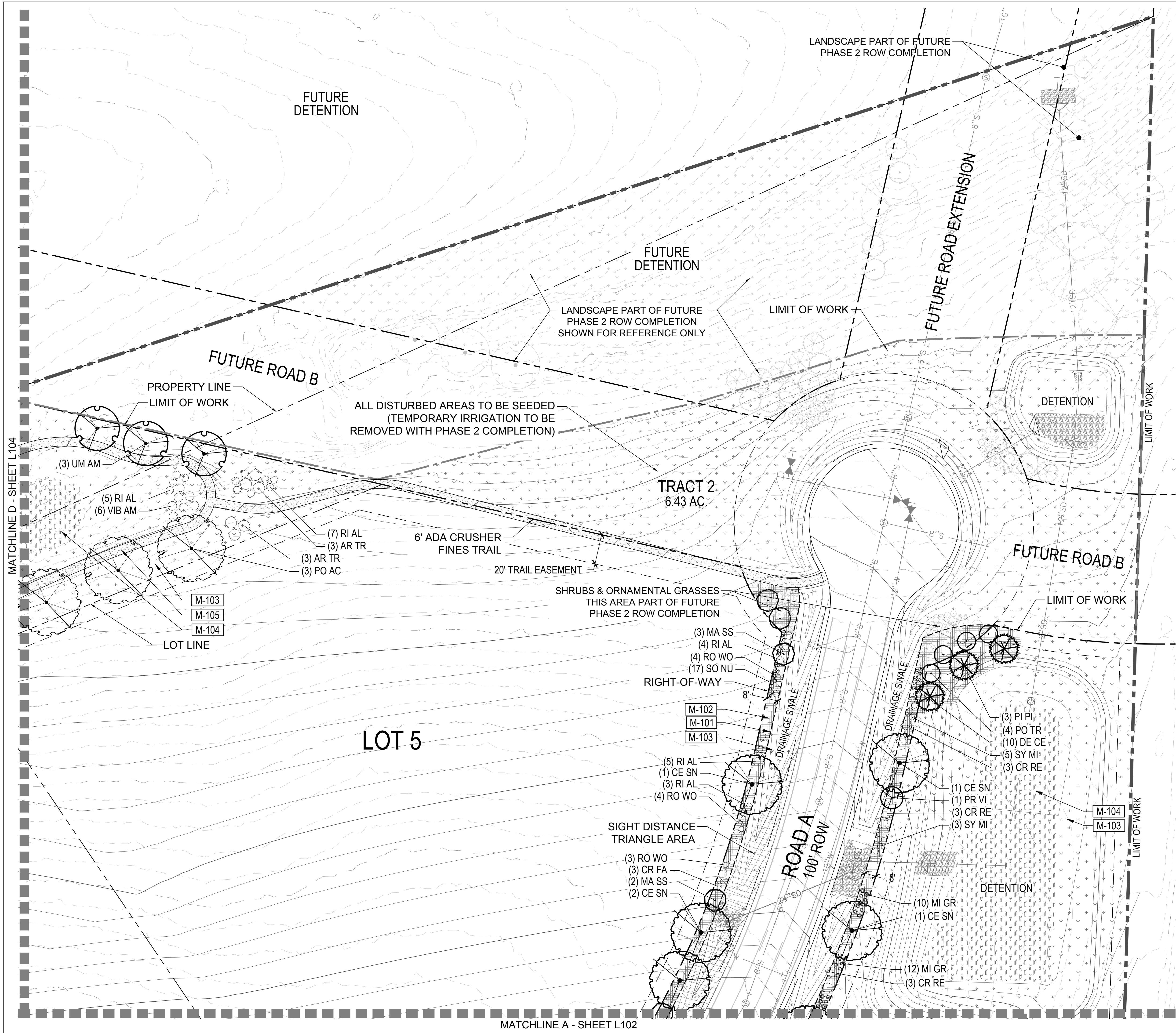
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DATE: 7-7-2023

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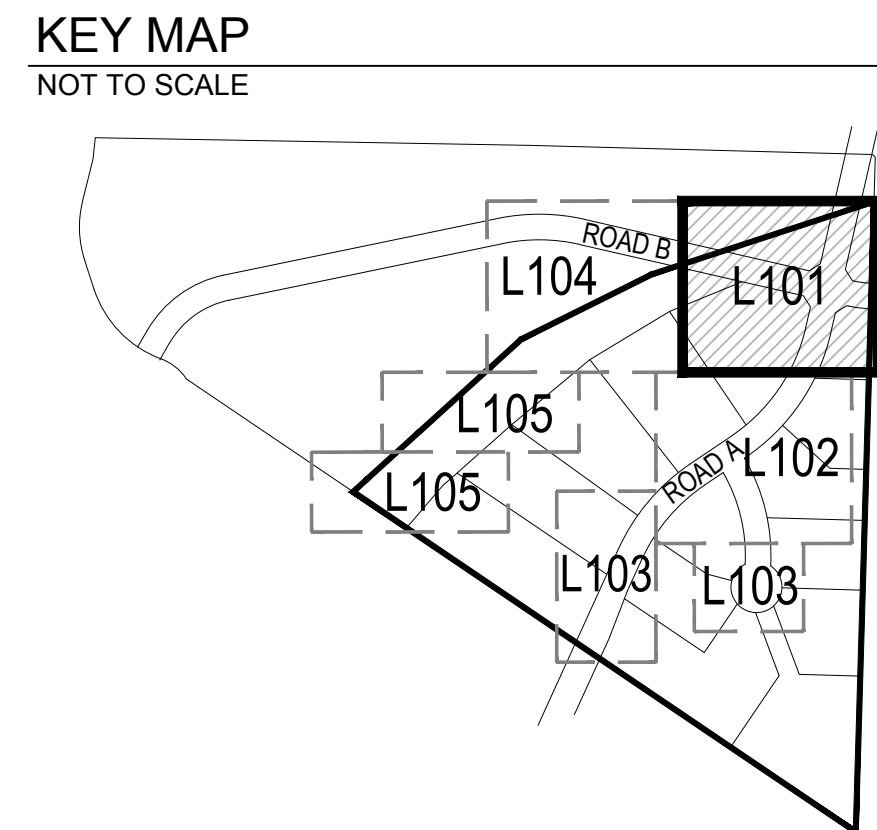
COVER
SHEET

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LEGEND

- DECIDUOUS SHADE TREE
- DECIDUOUS SHADE TREE
- EVERGREEN TREE
- SHRUB
- ORNAMENTAL GRASS
- ROCK MULCH
- SHORT NATIVE GRASS SEED MIX
- NATIVE RIPARIAN GRASS SEED MIX
- PHASE 2 LANDSCAPE
- PROPERTY LINE
- RIGHT-OF-WAY
- LOT LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- STEEL EDGER
- MATCH LINE
- POTENTIAL POINT OF ACCESS
- SIGHT DISTANCE TRIANGLE (NO LANDSCAPE MATERIAL ABOVE 3 FEET)



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Planning | Landscape Architecture | Branding

409 Main Street
Suite 207
P.O. Box 2320
Frisco, CO 80443
P 970.368.7068
www.norris-design.com

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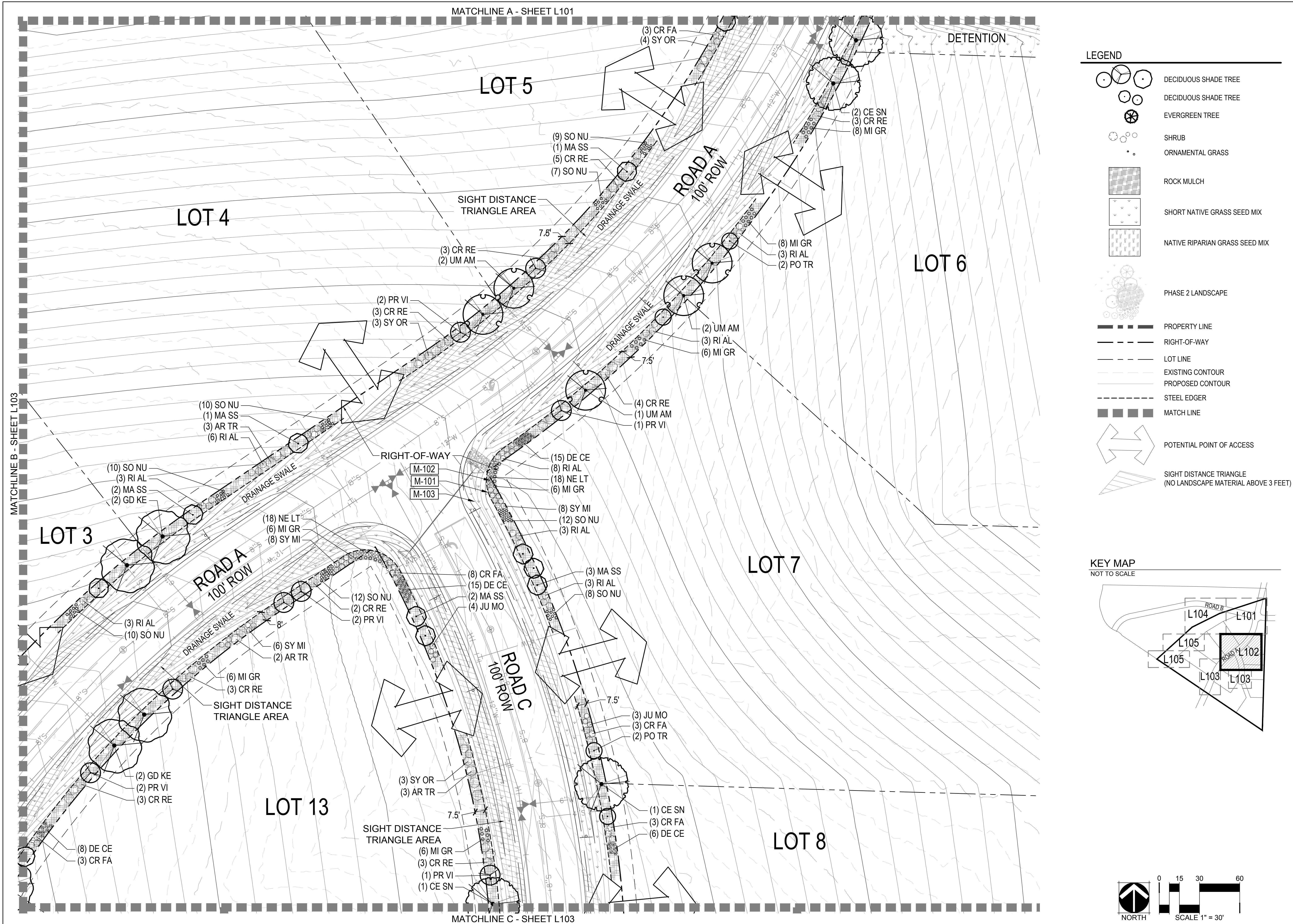
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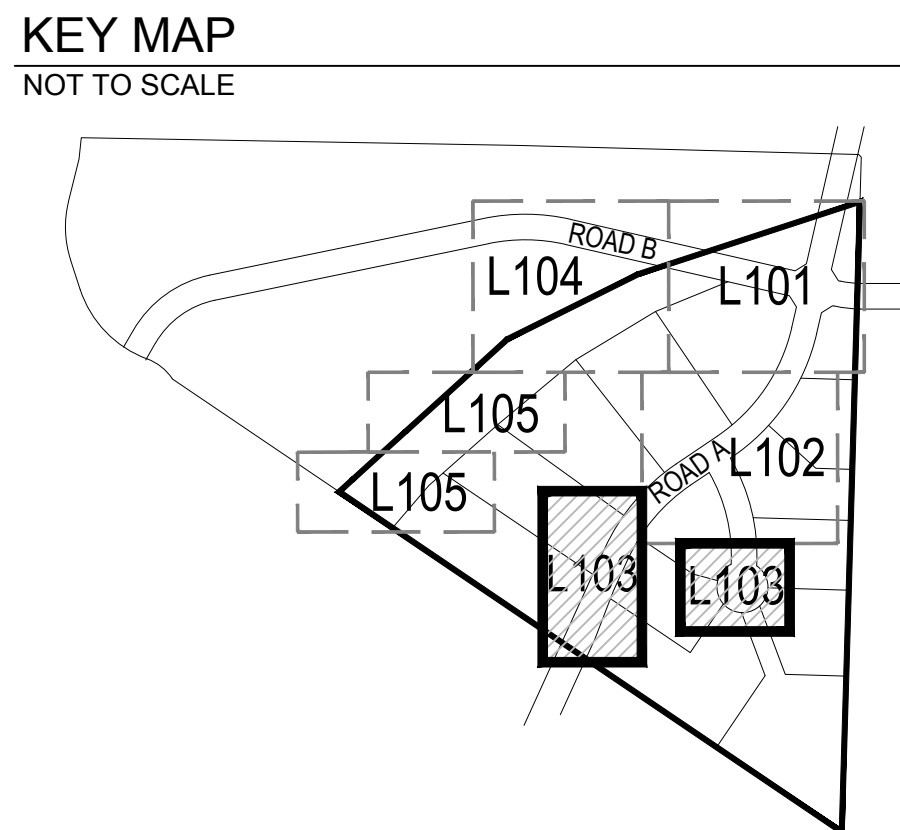
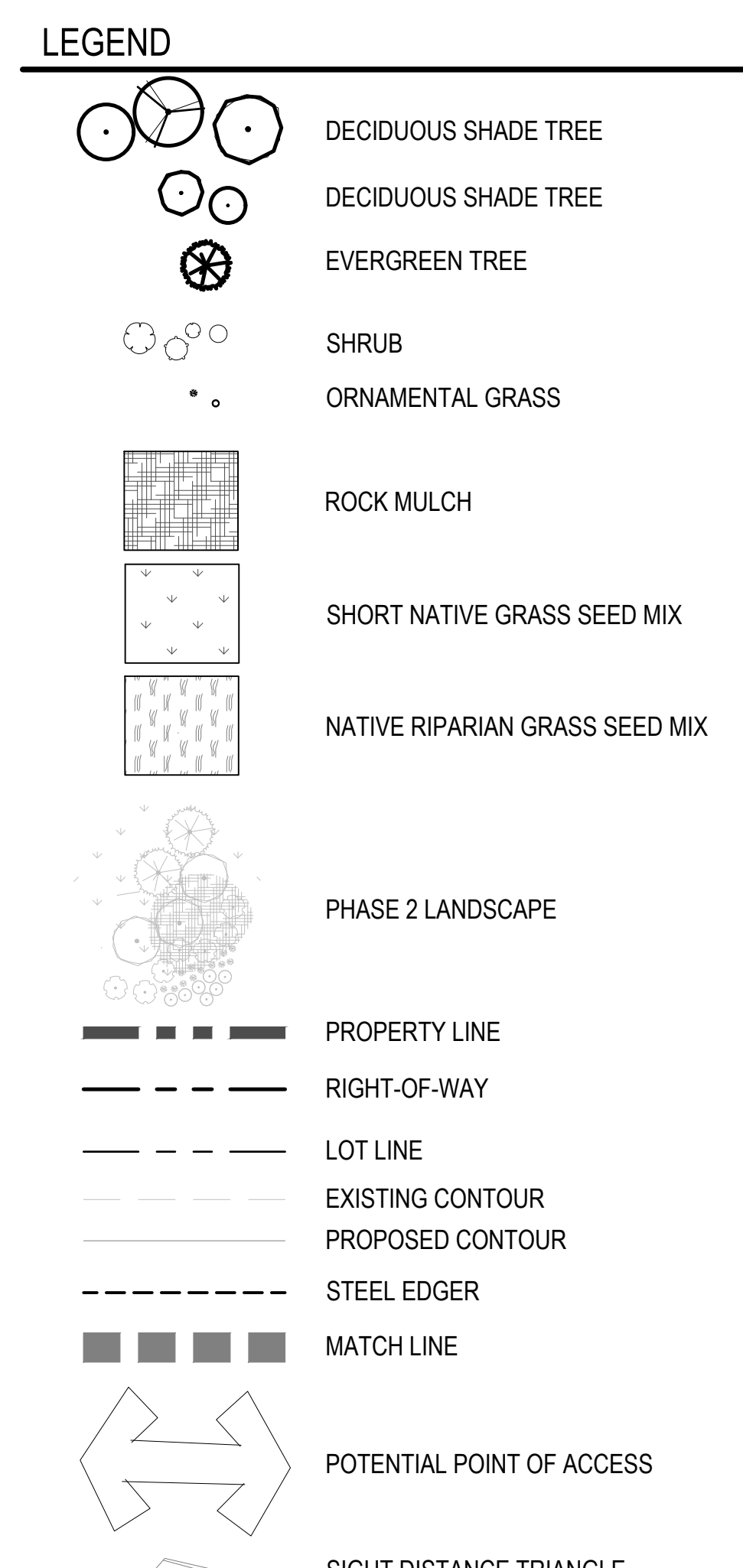
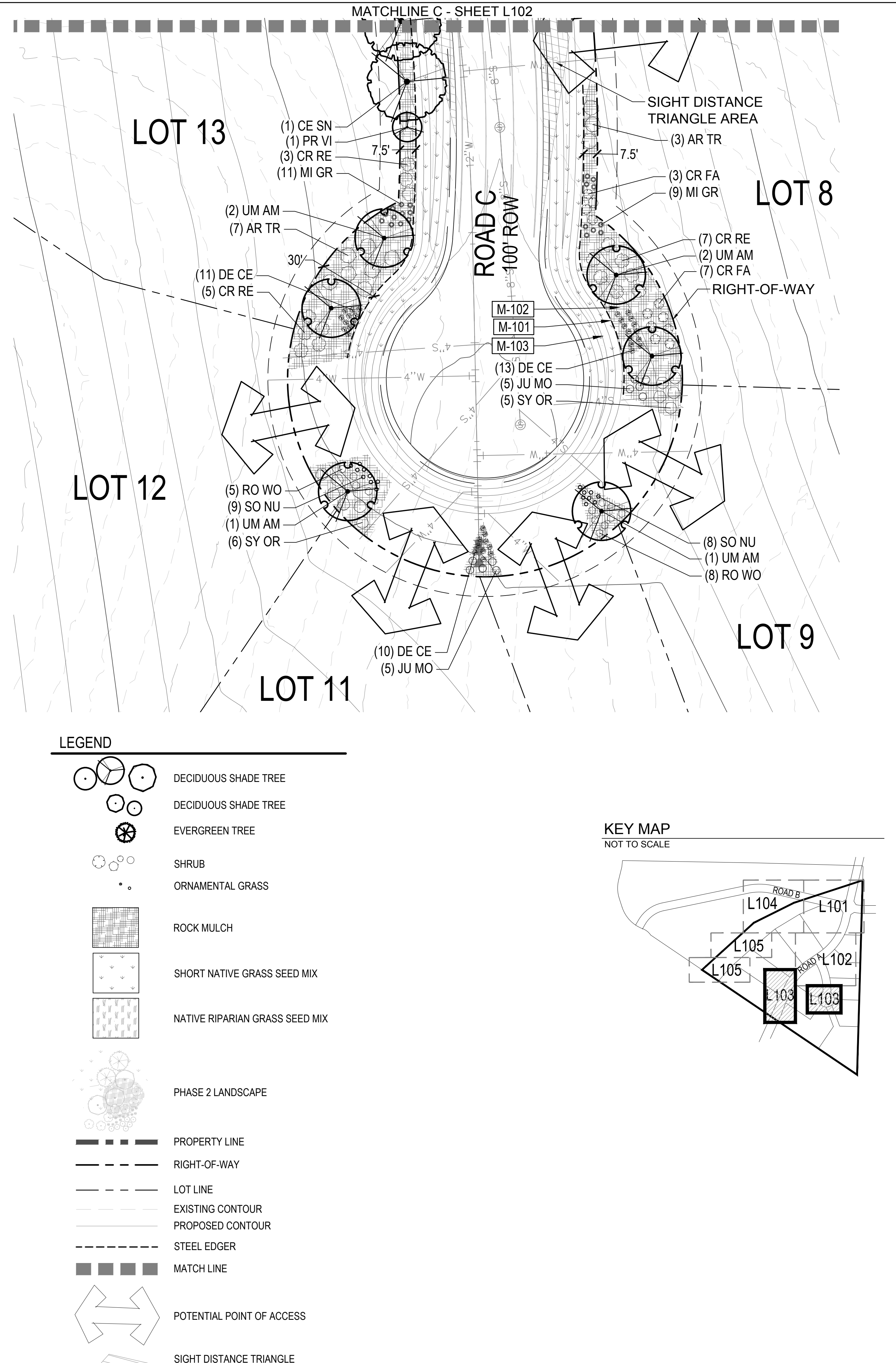
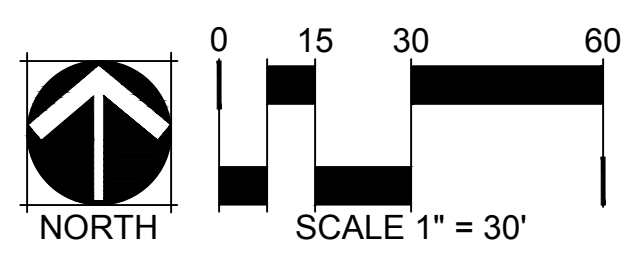
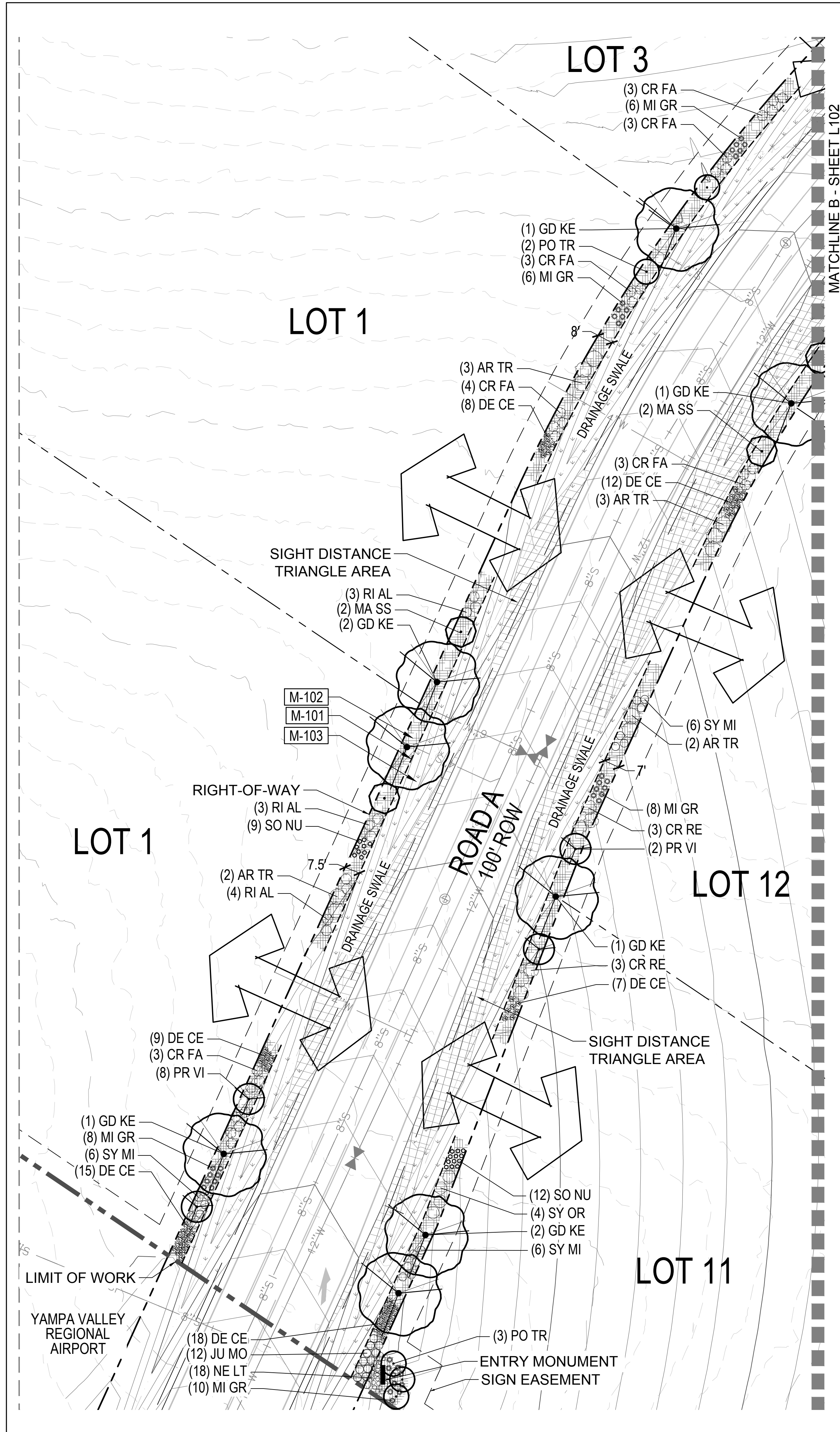
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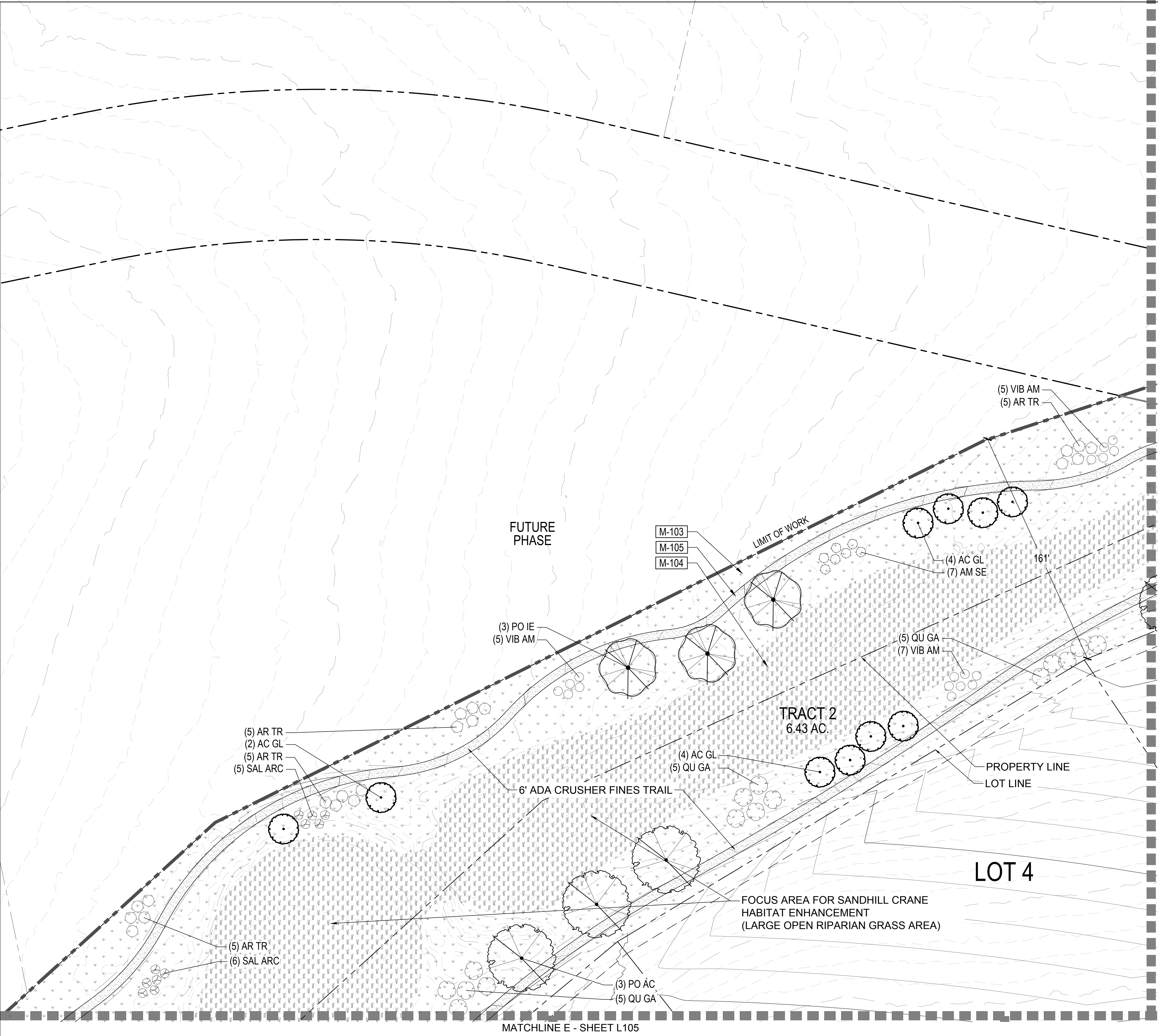
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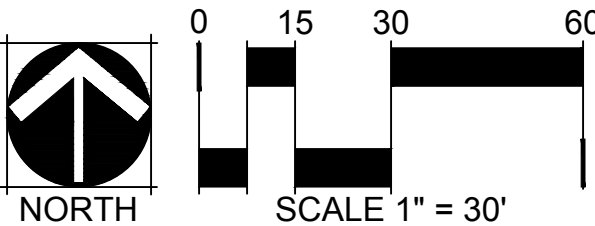
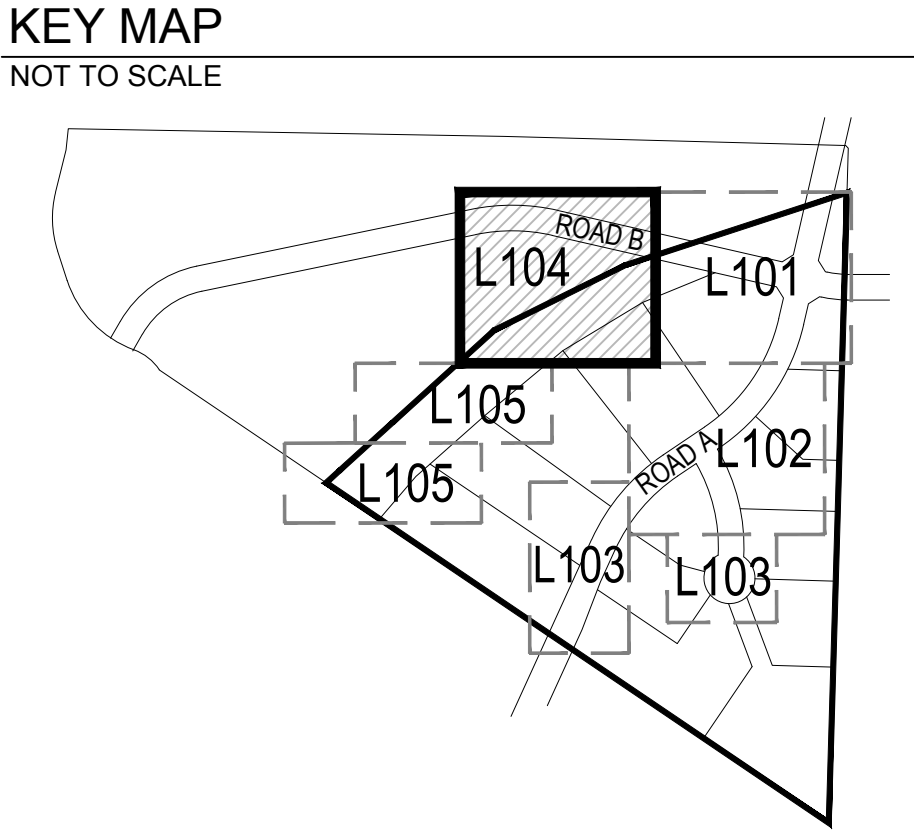


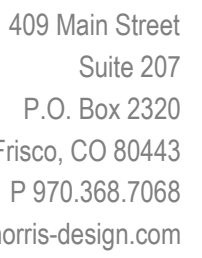




LEGEND

- DECIDUOUS SHADE TREE
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- EVERGREEN TREE
- SHRUB
- ORNAMENTAL GRASS
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- SHORT NATIVE GRASS SEED MIX
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- MATCH LINE
- POTENTIAL POINT OF ACCESS
- SIGHT DISTANCE TRIANGLE (NO LANDSCAPE MATERIAL ABOVE 3 FEET)





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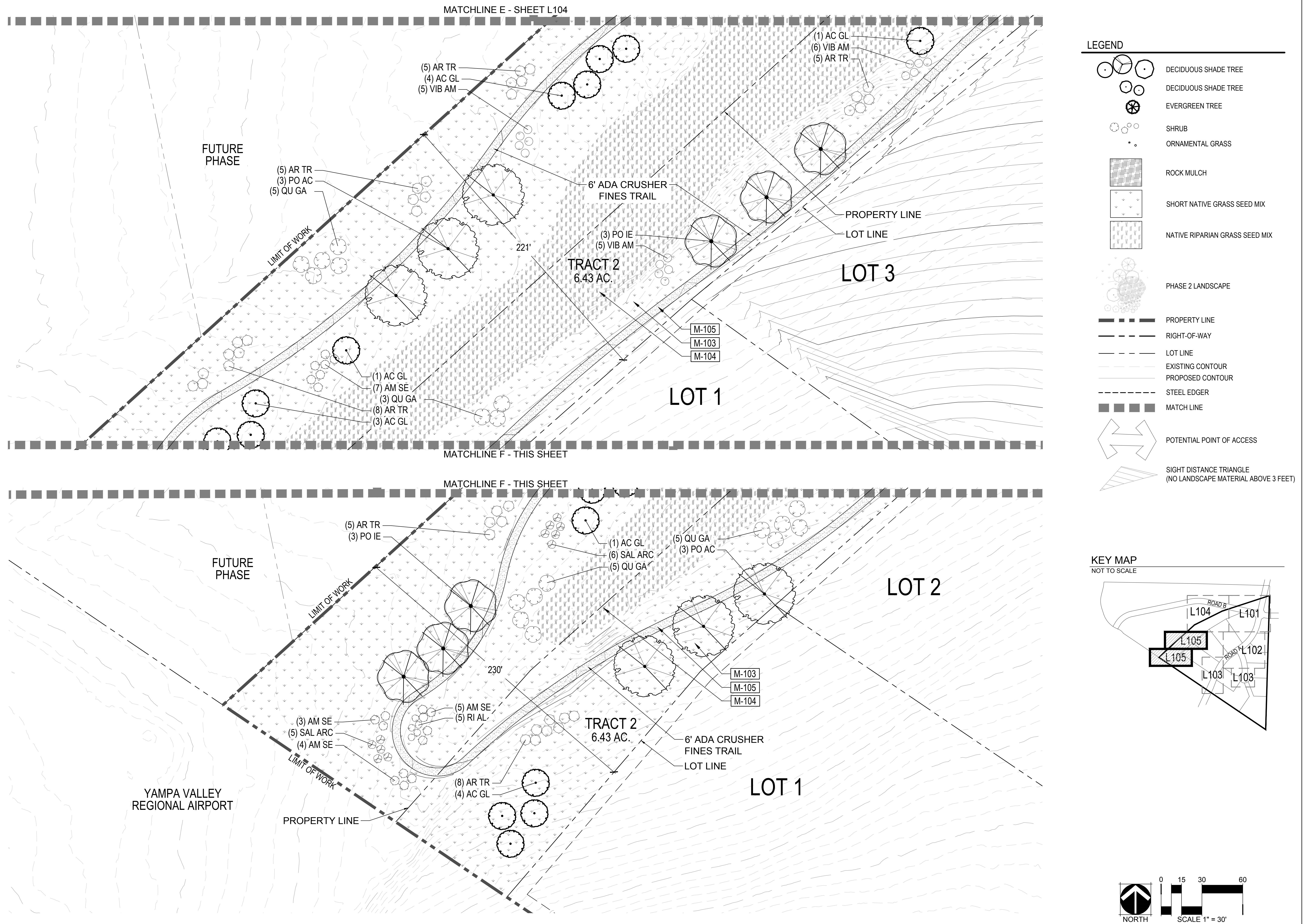
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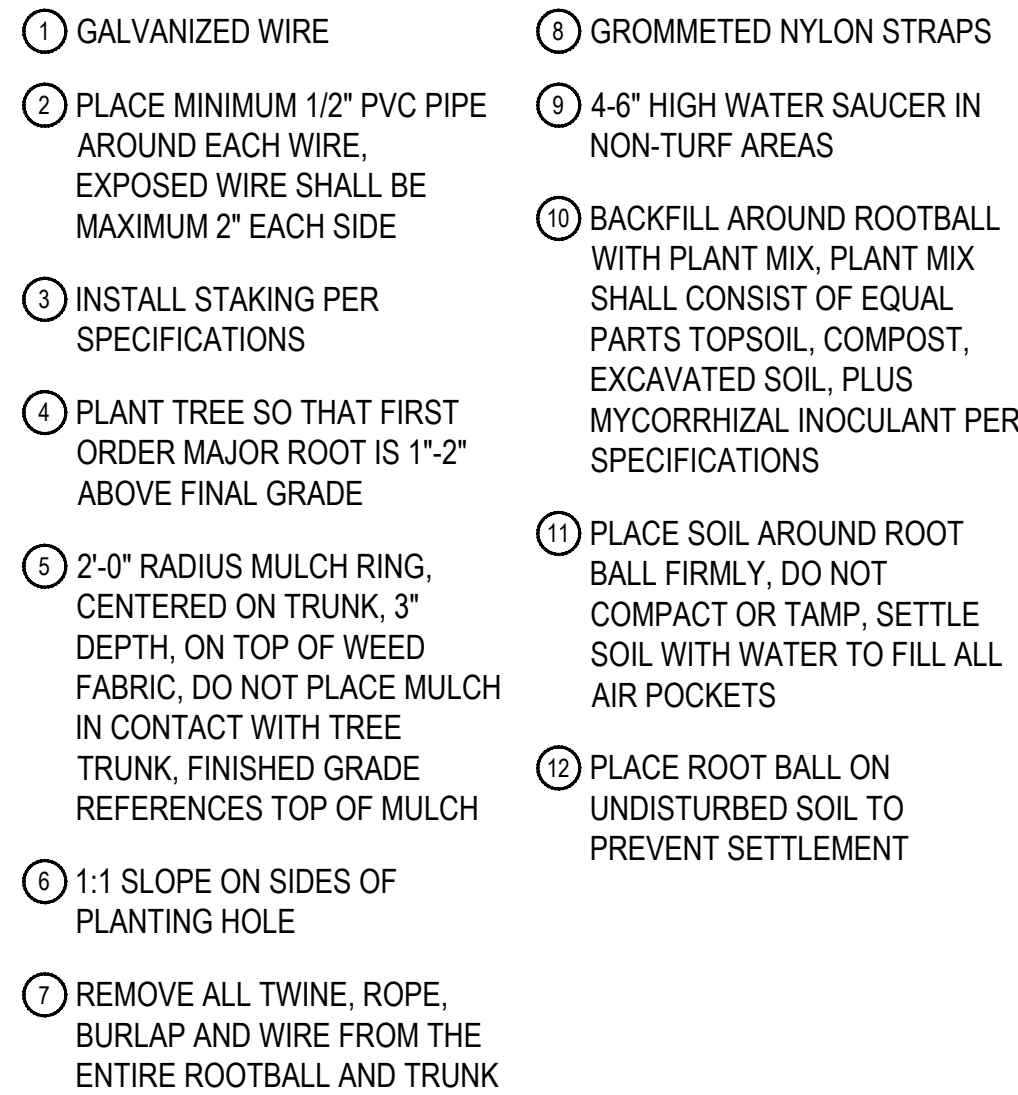
LANDSCAPE
PLAN

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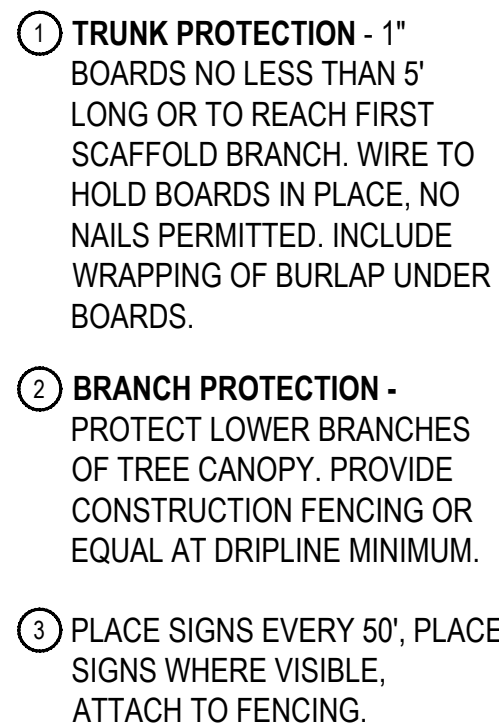
1. ALL PRUNING SHALL COMPLY WITH ANSI A300 STANDARDS.
2. DO NOT HEAVILY PRUNE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS AND BROKEN BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED. HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

1. STAKE TREES PER DIAGRAM. AFTER A MINIMUM OF (3) THREE YEARS CONFIRM TREE IS ESTABLISHED. CHECK FOR ROOTBALL STABILITY. APPLY HAND PRESSURE TO TRUNK OF TREE WHEN ROOTBALL DOES NOT MOVE, REMOVE STAKING.
 - a. 2" CALIPER SIZE AND UNDER DECIDUOUS AND ASPEN TREES - MINIMUM 2 STAKES - ONE ON N.W. SIDE, ONE ON S.W. SIDE (OR PREVAILING WIND SIDE AND 180° FROM THAT SIDE).
 - b. EVERGREEN TREES - 3 STAKES PER DIAGRAM.
 - c. 3" CALIPER SIZE AND LARGER - 3 STAKES PER DIAGRAM.
2. WIRE OR CABLE SHALL BE MINIMUM 12 GAUGE, TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. NYLON STRAPS SHALL BE LONG ENOUGH TO ACCOMMODATE 1-1/2" OF GROWTH AND BUFFER ALL BRANCHES FROM WIRE.
3. ADJUST STAKING, STRAPS AND GUY WIRES ANNUALLY.
4. TREATED WOOD POST PREFERRED. METAL T STAKES WITH PLASTIC SAFETY CAPS ACCEPTABLE WITH APPROVAL FROM OWNER.

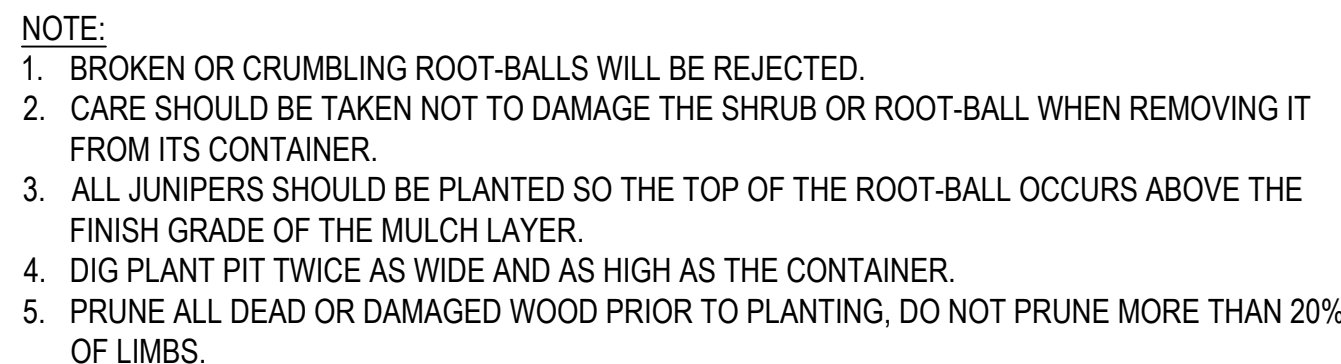


SCALE: 3/16" = 1'-0"

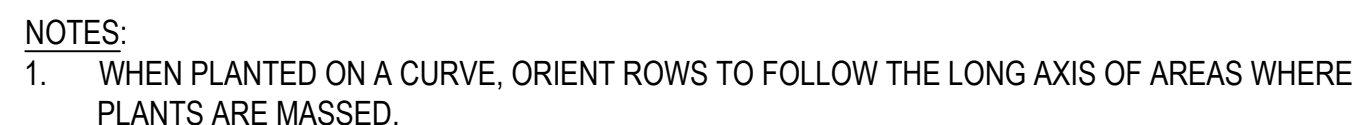
1. TREES TO BE PROTECTED AND PRESERVED SHALL BE IDENTIFIED ON THE TRUNK WITH WHITE SURVEY TAPE. GROUPING OF MORE THAN ONE TREE MAY OCCUR.
2. TO PREVENT ROOT SMOTHERING, SOIL STOCKPILES, SUPPLIES, EQUIPMENT OR ANY OTHER MATERIAL SHALL NOT BE PLACED OR STORED WITHIN THE DRIP LINE OR WITHIN 15 FEET OF A TREE TRUNK, WHICHEVER IS GREATER.
3. FENCING MATERIAL SHALL BE SET AT THE DRIP LINE OR 15 FEET FROM TREE TRUNK, WHICHEVER IS GREATER, AND MAINTAINED IN AN UPRIGHT POSITION THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
4. FENCING MATERIAL SHALL BE BRIGHT, CONTRASTING COLOR, DURABLE, AND A MINIMUM OF FOUR FEET IN HEIGHT.
5. TREE ROOTS SHALL NOT BE CUT UNLESS CUTTING IS UNAVOIDABLE.
6. WHEN ROOT CUTTING IS UNAVOIDABLE, A CLEAN SHARP CUT SHALL BE MADE TO AVOID SHREDDING OR SMASHING. ROOT CUTS SHOULD BE MADE BACK TO A LATERAL ROOT. ROOTS SHALL BE CUT NO MORE THAN 1/3 OF THE RADIUS FROM DRIPLINE TO TRUNK. WHENEVER POSSIBLE, ROOTS SHOULD BE CUT BETWEEN LATE FALL AND BUD OPENING, DURING DORMANCY PERIOD. ROOT STIMULATOR SHALL BE APPLIED TO CUT ROOTS. EXPOSED ROOTS SHALL BE COVERED IMMEDIATELY TO PREVENT DEHYDRATION. ROOTS SHALL BE COVERED WITH SOIL OR BURLAP AND KEPT MOIST. WATERING OF PROTECTED TREES IN WHICH ROOTS WERE CUT SHALL BE PROVIDED BY THE CONTRACTOR.
7. WHEN ROOT CUTTING IS UNAVOIDABLE, A CLEAN SHARP CUT SHALL BE MADE TO AVOID SHREDDING OR SMASHING. ROOT CUTS SHOULD BE MADE BACK TO A LATERAL ROOT. WHENEVER POSSIBLE, ROOTS SHOULD BE CUT BETWEEN LATE FALL AND BUD OPENING, DURING DORMANCY PERIOD. EXPOSED ROOTS SHALL BE COVERED IMMEDIATELY TO PREVENT DEHYDRATION. ROOTS SHALL BE COVERED WITH SOIL OR BURLAP AND KEPT MOIST. WATERING OF PROTECTED TREES IN WHICH ROOTS WERE CUT SHALL BE PROVIDED BY THE CONTRACTOR.
8. ANY GRADE CHANGES (SUCH AS THE REMOVAL OF TOPSOIL OR ADDITION OF FILL MATERIAL) WITHIN THE DRIP LINE SHOULD BE AVOIDED FOR EXISTING TREES TO REMAIN. RETAINING WALLS AND TREE WELLS ARE ACCEPTABLE ONLY WHEN CONSTRUCTED PRIOR TO GRADE CHANGE.



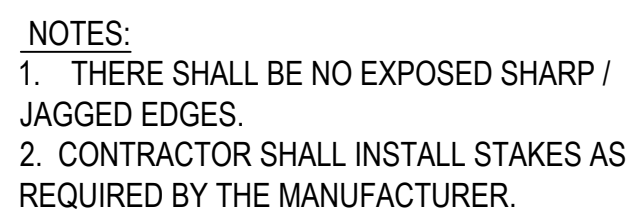
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SCALE: 1 1/2" = 1'-0"



SCALE: 1" = 1'-0"

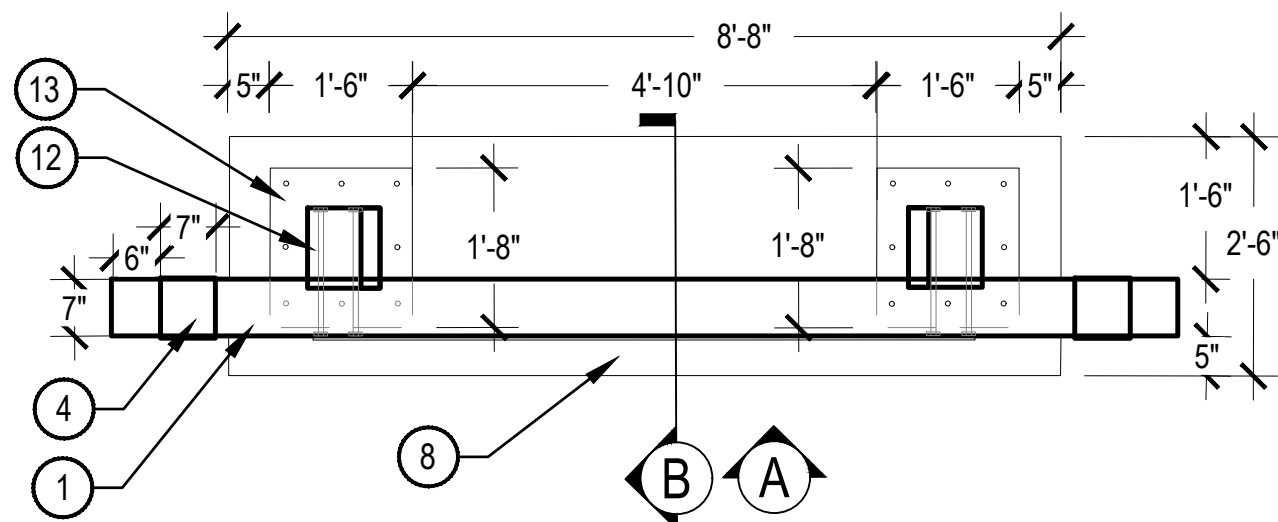


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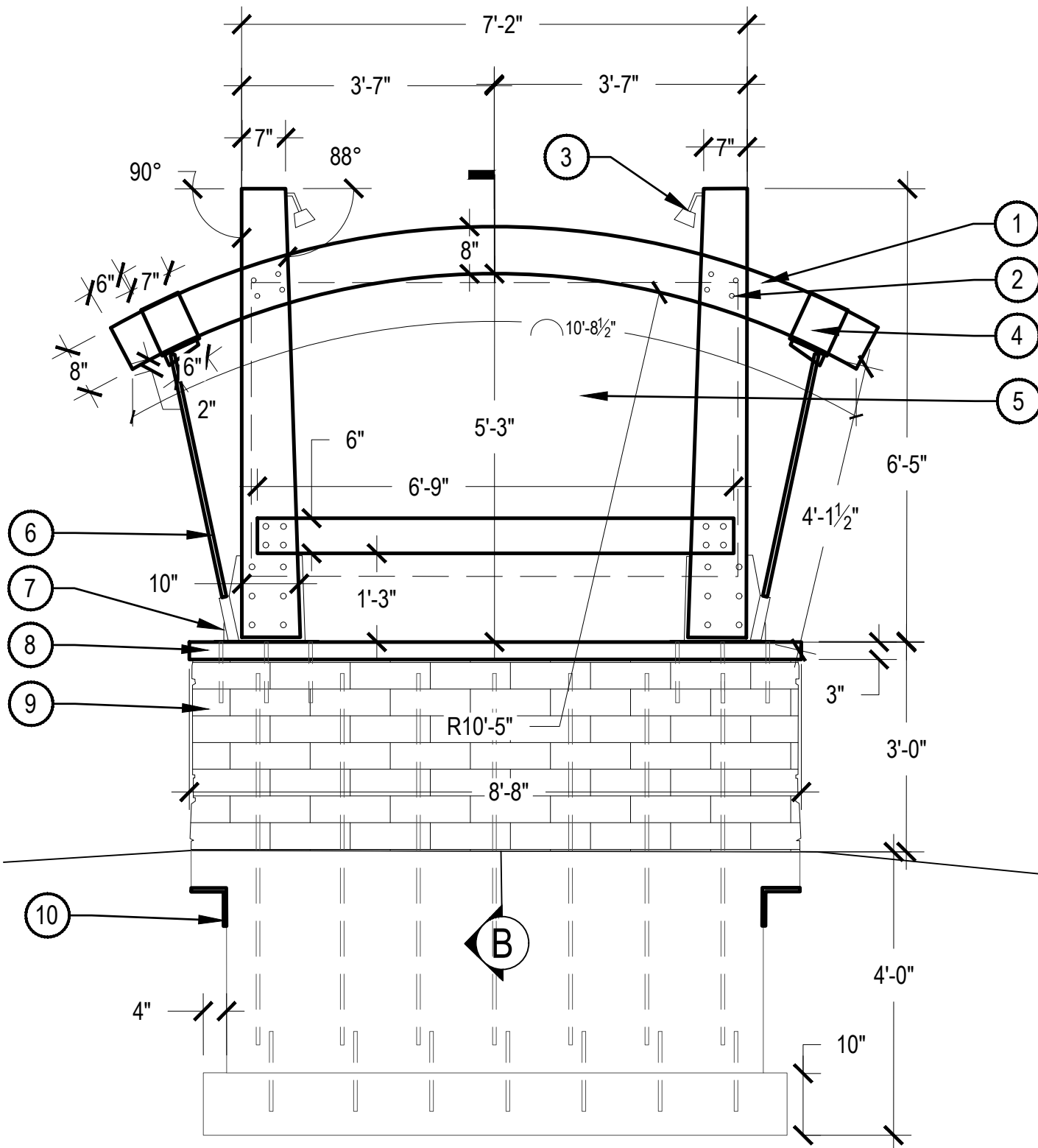
L201



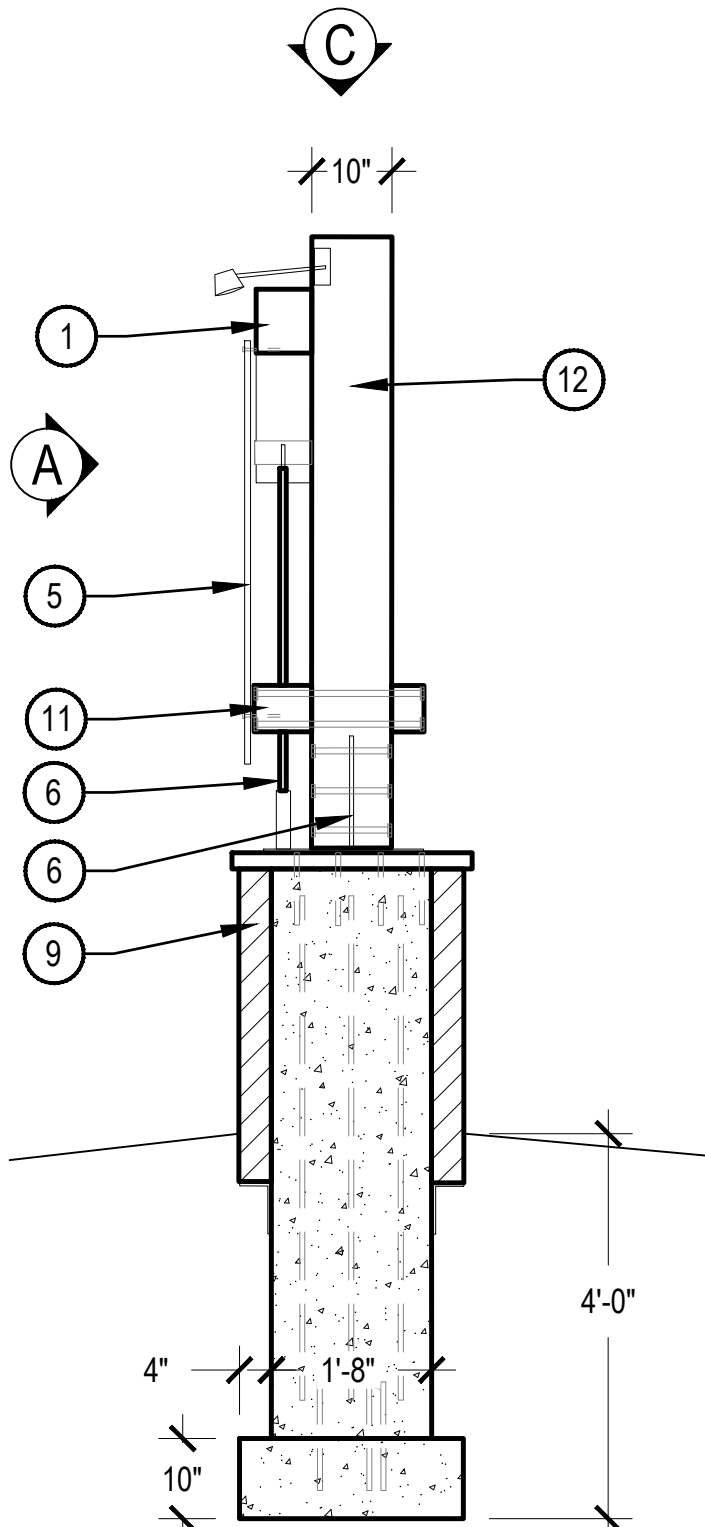
REFERENCE ELEVATION W/ LOGO



C: PLAN VIEW



A: ELEVATION



B: SECTION

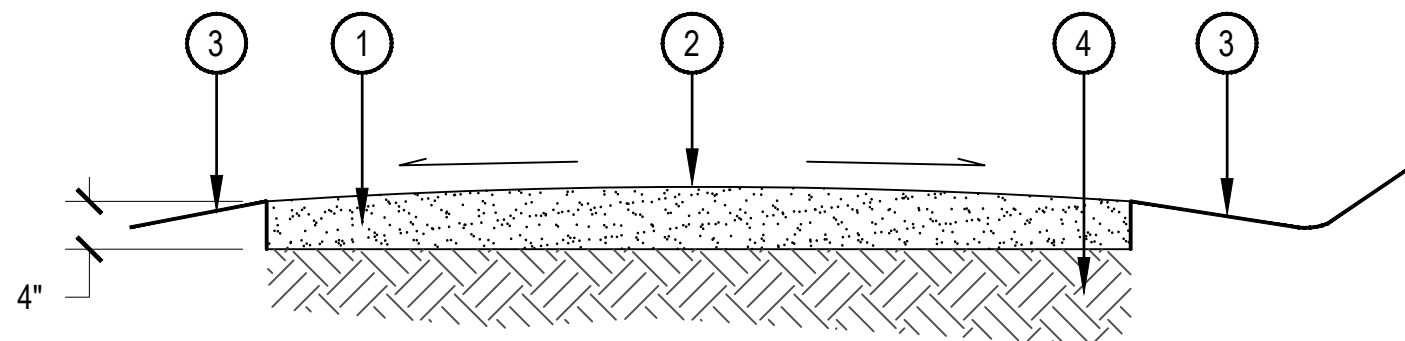
NOTES:

1. THIS DETAIL IS FOR DESIGN DEVELOPMENT PURPOSES ONLY. GAUGE OF METAL AND STRUCTURAL SUPPORT OF CABINETS AND FASTENINGS TO BE DETERMINED BY SIGN FABRICATOR AND STRUCTURAL ENGINEER. SIGN FABRICATOR IS REQUIRED TO SUBMIT SHOP DRAWINGS FOR APPROVAL.
2. ALL PAINTS TO BE OUTDOOR AUTOMOTIVE GRADE PAINT, ALL PAINT COLORS AND OTHER SIGN FINISHES TO BE SUBMITTED FOR APPROVAL BEFORE FABRICATION BEGINS.
3. STRUCTURAL FOUNDATIONS WILL BE REQUIRED FOR ALL SIGNS. FOUNDATION DESIGN IS NOT INCLUDED IN THESE DETAILS AND WILL NEED TO BE DESIGNED BY LICENSED STRUCTURAL ENGINEER.
4. ALL WELDED EDGES TO BE DEBURRED AND SMOOTH, ALL BOLTED CONNECTIONS AND FASTENINGS TO BE HIDDEN OR INCLUDE COVERS.
5. REFER TO LANDSCAPE PLANS FOR PLACEMENT OF MONUMENT ON SITE AND ADJACENT GROUND TREATMENT.

- | | |
|---|---|
| 1 7X8 ARCHED ROUGH TIMBER TOP RAIL | 10 STEEL ANGLE TO SUPPORT STONE VENEER |
| 2 THRU BOLT EXPOSED & COUNTERSUNK STEEL CONNECTORS | 11 7X6 ROUGH TIMBER BRACE - CONNECTS TO COLUMN VIA COUNTERSUNK AND EXPOSED CONNECTORS |
| 3 DOWNLIGHTS | 12 10X12 ROUGH TIMBER TAPERED COLUMN (NOT TAPERED IN THIS DIRECTION) |
| 4 STEEL PLATE STRAPPING | 13 STEEL PLATE WITH WELDED KNIFE PLATE |
| 5 STEEL SIGN WITH BLACKENED PATINA (WEATHER STABLE) AND RAISED AND ENGRAVED STAINLESS OR CONTRASTING LETTERS | |
| 6 1" STEEL ROD - TOP WELDS TO STEEL STRAP, LOWER END SLEEVE WELDS TO BASE PLATE | |
| 7 3/8" STEEL KNIFE PLATE WITH EXPOSED & COUNTERSUNK CONNECTORS ON CONCRETE FOUNDATION - (4) 3/8" DIAMETER EPOXY ANCHORS, 18" EMBEDMENT TYP. | |
| 8 STONE CAP | |
| 9 4-6" STONE VENEER ON CONCRETE FOUNDATION | |

ENTRY MONUMENT DETAIL

SCALE: 1/2" = 1'



COMPACTION NOTES:

1. COMPACT WET FOR BEST RESULTS.
2. USE A SMALL (4') RIDING ROLLER TO COMPACT
3. CROWN TRAIL IN FLAT AREAS (AS SHOWN).
4. CROSS-SLOPE TRAIL AT 1-2% WITH GRADE WHERE TOPOGRAPHY DICTATES.
5. CRUSHER FINE SURFACING (WHEN USED FOR TRAILS) SHALL BE INSTALLED WITH ORGANIC LOCK BINDING AGENT OR APPROVED EQUAL APPLIED PER THE MANUFACTURE'S SPECIFICATIONS.

- 1 CRUSHER FINES, PLACE IN TWO EQUAL COMPACTED LIFTS. COMPACT TO 95% STANDARD PROCTOR DENSITY. WET CRUSHER FINES TO AID IN COMPACTION. REFER TO PLANS FOR LAYOUT AND WIDTH. 4" MINIMUM DEPTH
- 2 CROWN OF 2% CROSS-SLOPE SURFACE FOR PROPER DRAINAGE AS DEFINED BY PLANS
- 3 PROVIDE POSITIVE DRAINAGE AWAY FROM CRUSHER FINES ALONG THE EDGES
- 4 SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY

CRUSHER FINES PATH

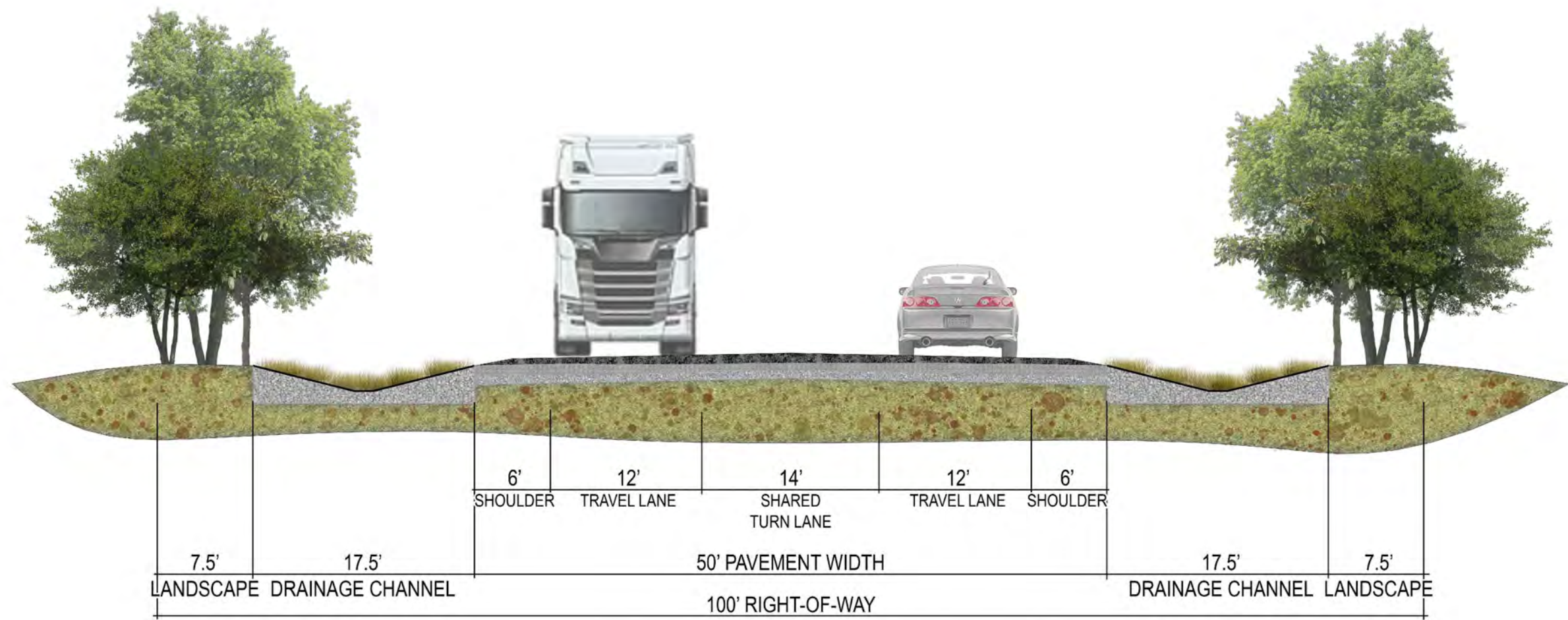
NOT TO SCALE

OWNER:
TOWN OF HAYDEN
PO BOX 190
178 W. JEFFERSON
HAYDEN, CO 81639
970.276.3741

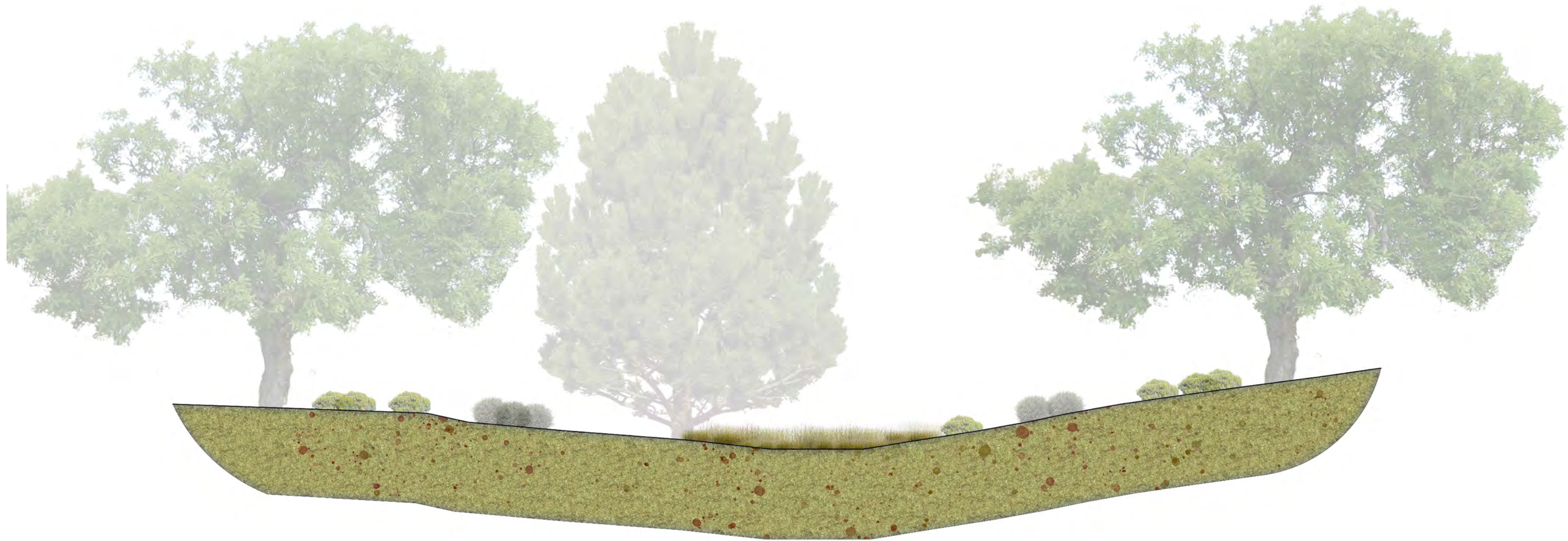
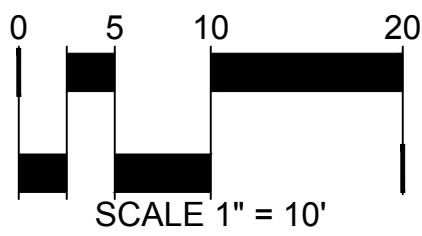
NOT FOR
CONSTRUCTION

DATE:
7-7-2023
FINAL PLAT RESUBMITTAL

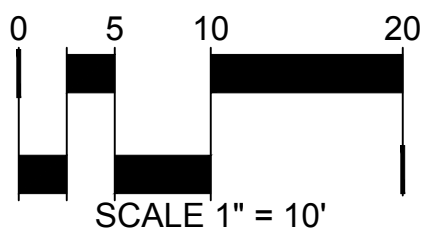
CROSS-SECTIONS



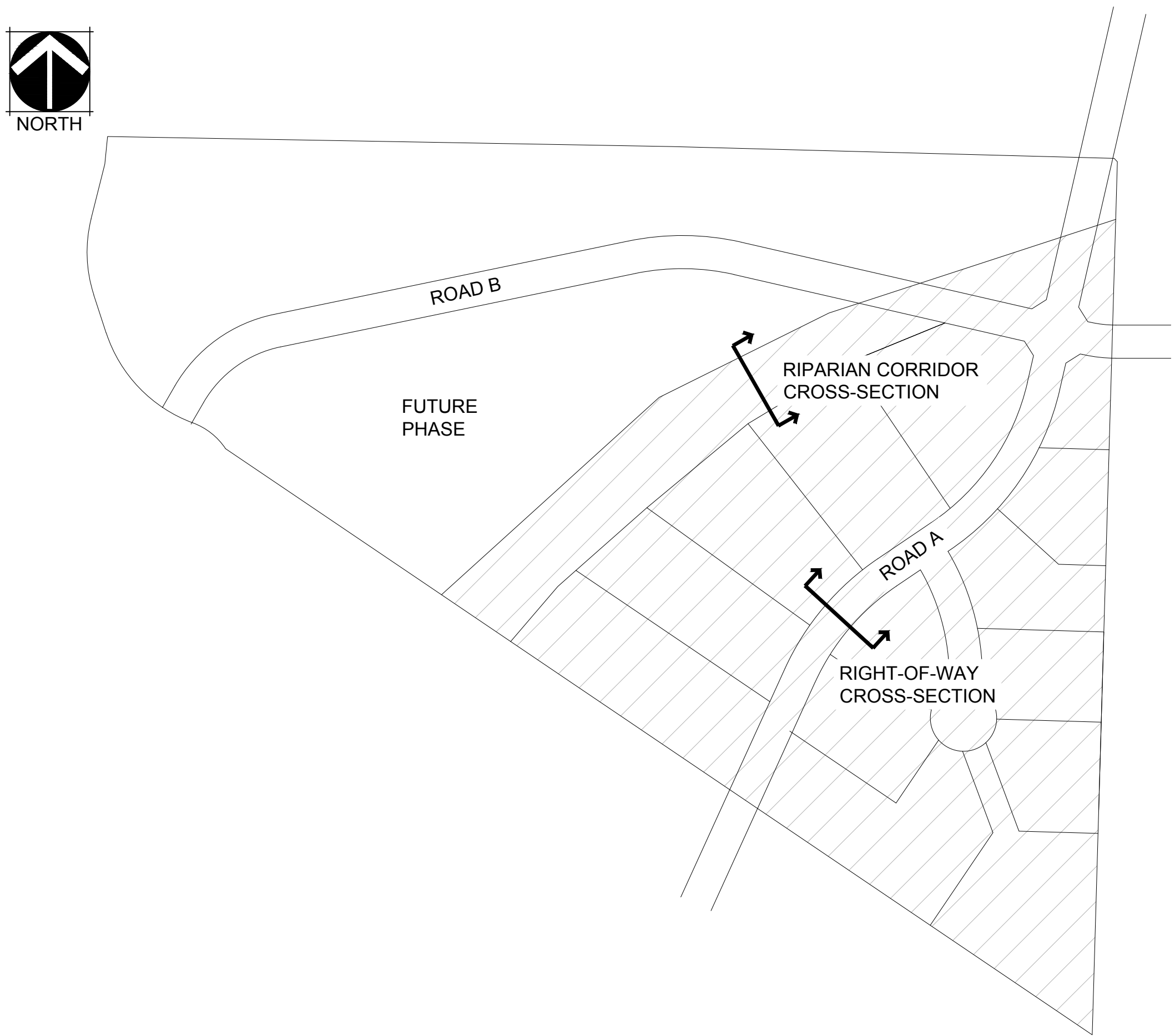
RIGHT-OF-WAY CROSS-SECTION
SCALE: 1" = 10'



RIPARIAN CORRIDOR CROSS-SECTION
SCALE: 1" = 10'



KEY MAP
NOT TO SCALE



NORTHWEST COLORADO BUSINESS PARK

FINAL LANDSCAPE PLAN

HAYDEN, COLORADO

OWNER:

TOWN OF HAYDEN

PO BOX 190

178 W. JEFFERSON

HAYDEN, CO 81639

970.276.3741

NOT FOR

CONSTRUCTION

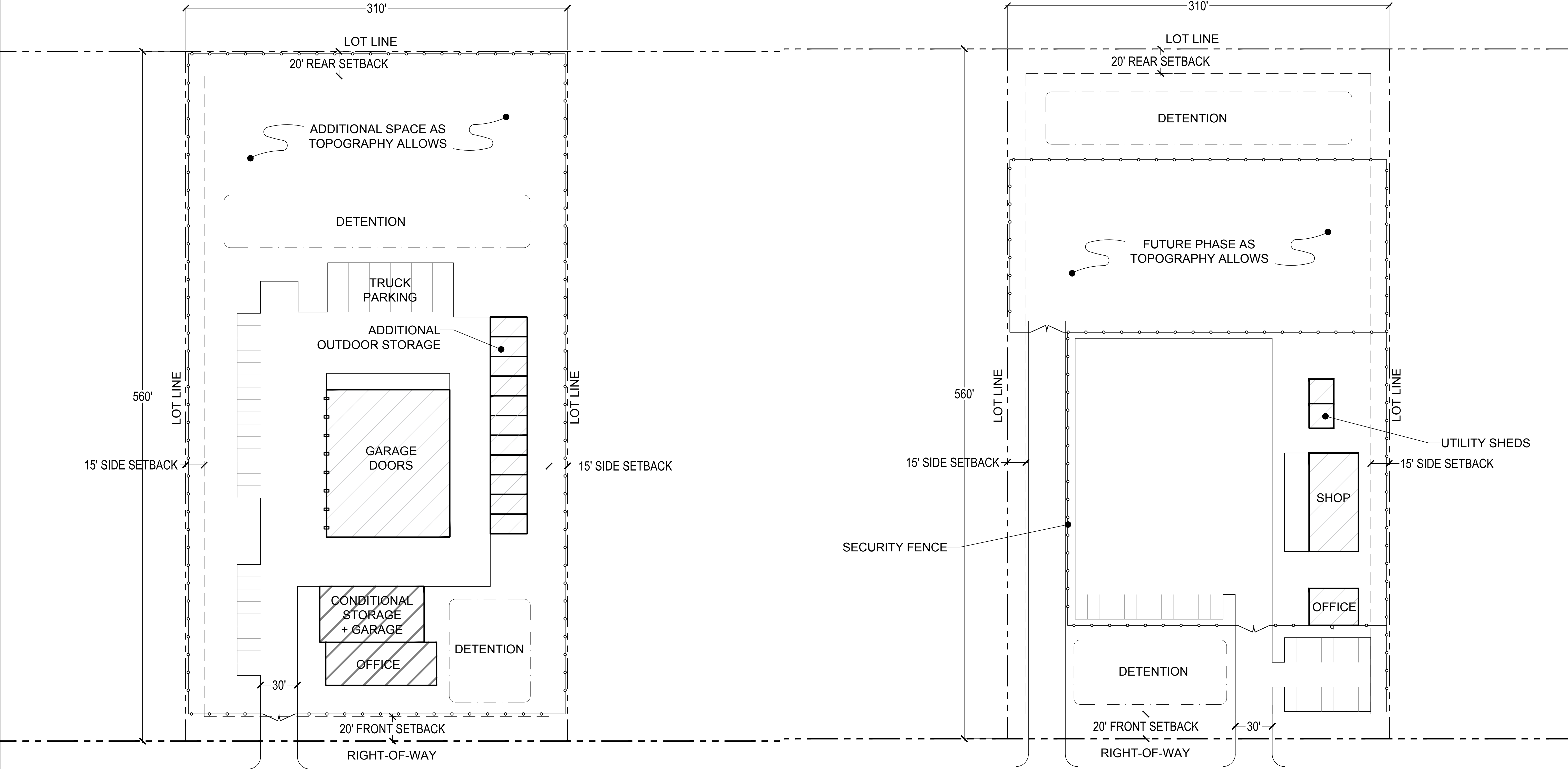
DATE:

7-7-2023

FINAL PLAT RESUBMITTAL

SITE

DETAILS

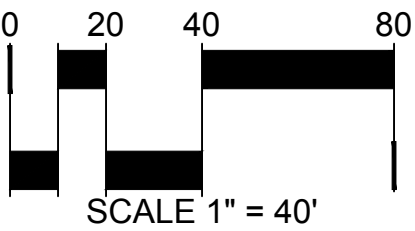


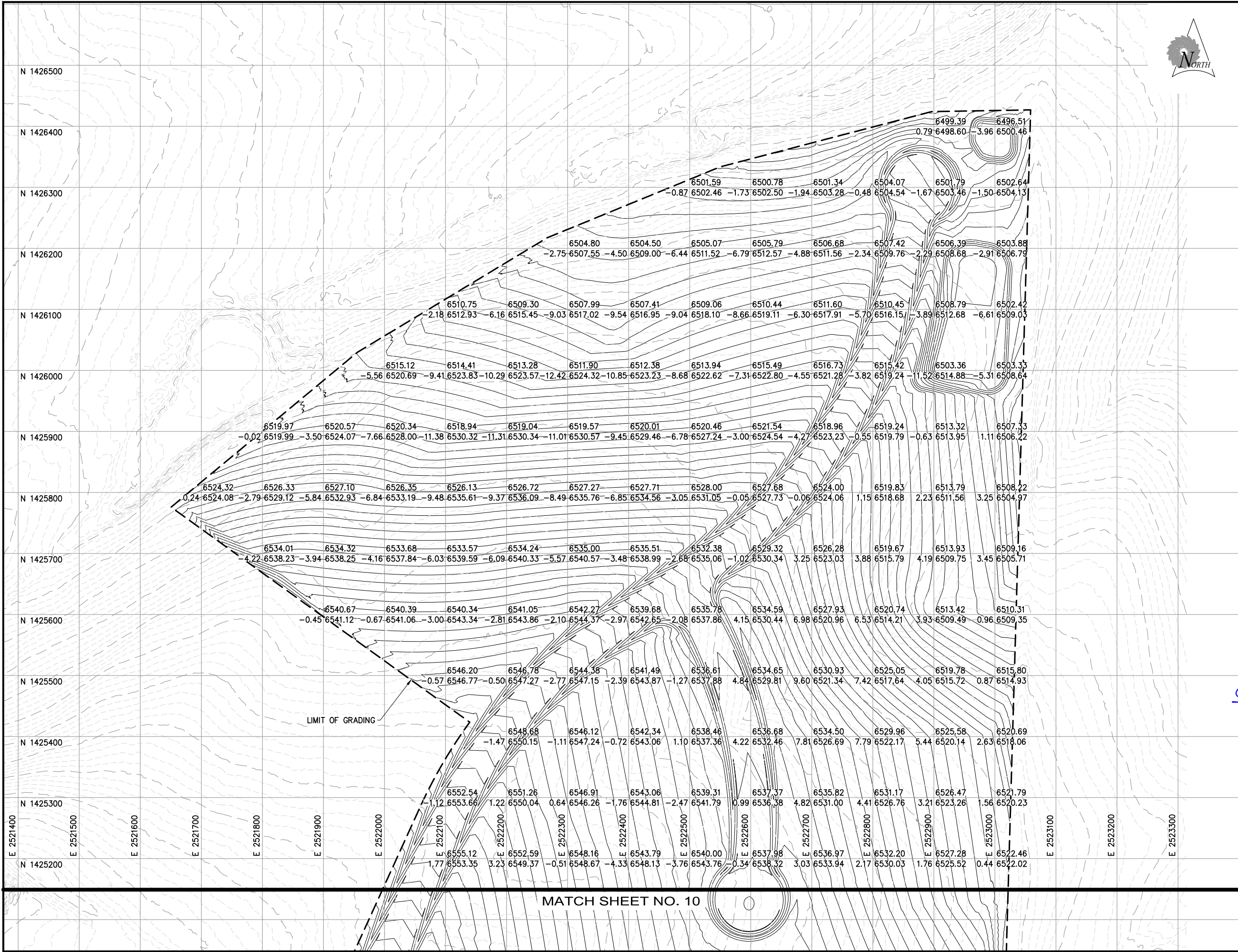
LOT TYPICAL A

SCALE: 1" = 40'

LOT TYPICAL B

SCALE: 1" = 40'





GRADING NOTES

CUT VOLUME - 154,550 CY
FILL VOLUME - 155,960 CY
NET VOLUME - 1,410 CY OF BORROW MATERIAL
A FILL FACTOR OF 1.2 WAS APPLIED

UTILITY SPOIL MATERIAL MAY BE USED FOR BORROW MATERIAL. 1,420 CY OF SPOIL WAS ASSUMED FOR ON-SITE WATER AND SEWER UTILITIES.

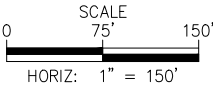
TOPSOIL STOCKPILE VOLUME - 37,100 CY (6" DEPTH)
SPREAD TOPSOIL TO DEPTH OF APPROXIMATELY 5"

IT IS ASSUMED THAT ALL NATIVE EXCAVATED MATERIAL IS SUITABLE BORROW MATERIAL

SEE SPECIFICATIONS FOR COMPACTION AND MATERIAL TESTING REQUIREMENTS FOR SUBGRADE MATERIAL

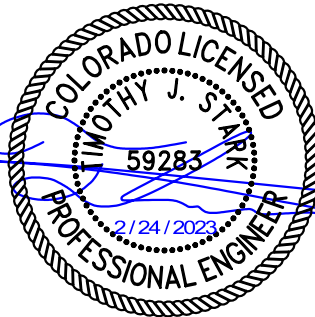
ALL QUANTITIES GIVEN IN THESE SHEETS ARE ESTIMATES TO AID THE CONTRACTOR IN THE BIDDING PROCESS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATING THEIR OWN FUEL AND HAUL QUANTITIES WHEN DETERMINING BID PRICE.





Know what's below.
Call before you dig.
1-800-922-1987



REVISION NUMBER	1
COMMENT	REGRADING
DATE	07-20-2023
REVISION NUMBER	
COMMENT	
DATE	
REVISION NUMBER	
COMMENT	
DATE	



201 COMMERCE DRIVE, UNIT 1
FORT COLLINS, COLORADO 80524
TEL 970.372.2255
www.sunrise-eng.com

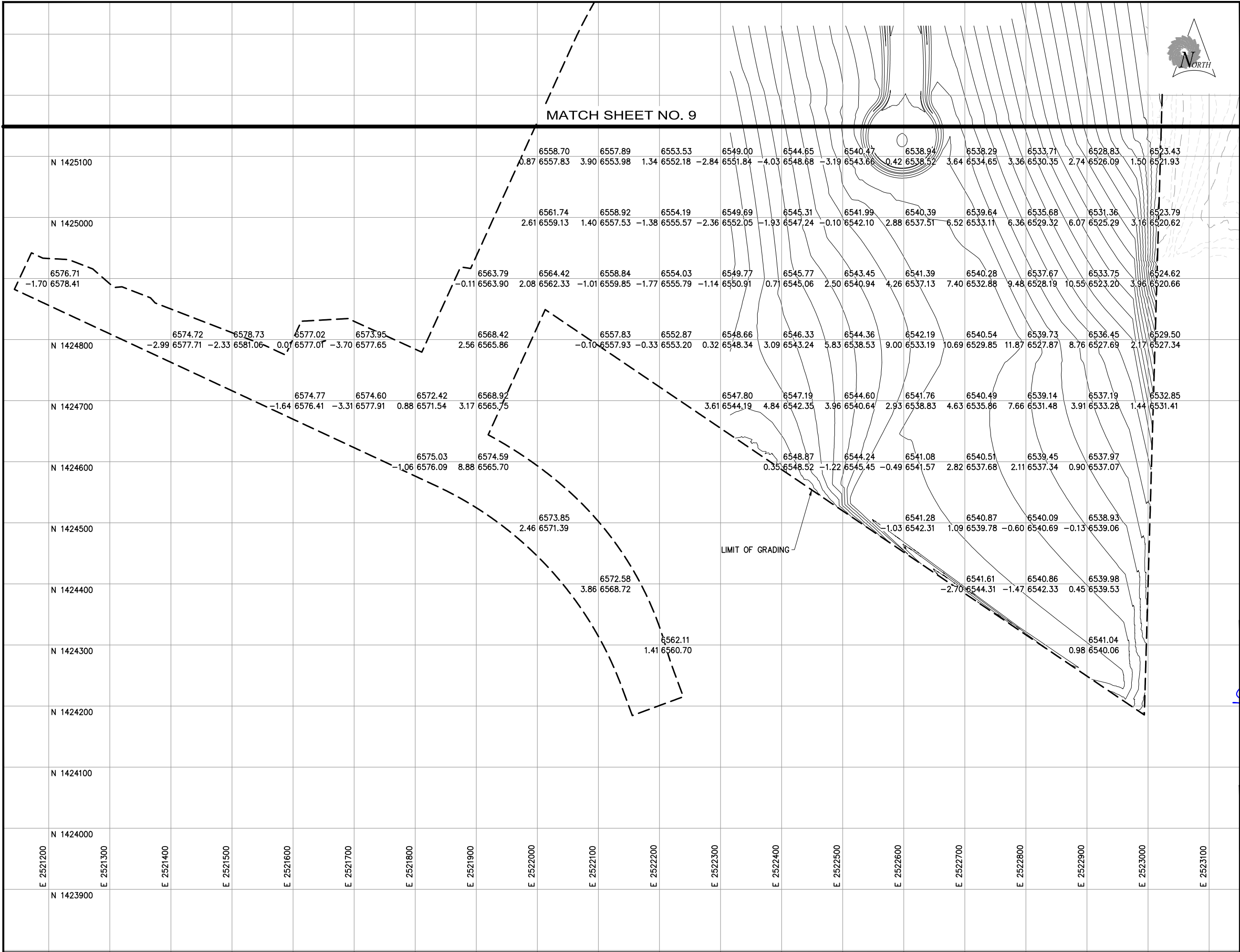
TOWN OF HAYDEN
HAYDEN BUSINESS PARK - PHASE 1

OVERLOT GRADE PLAN

SET NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
08834	TJS	TS/JC/DB	TLS	9 of 70	GR01

MATCH SHEET NO. 10

P:\Hayden\08834 - Hayden Business Park Development\Drawings\Sheets\HBP-GRADE_OVERLOT.dwg Jul 21, 2023 1:36pm tstartk



GRADING NOTES

CUT VOLUME - 154,550 CY
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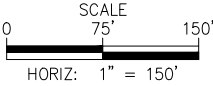
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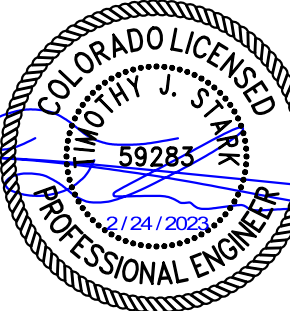
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811 Know what's below.
Call before you dig.
1-800-922-1987



REVISION NUMBER	1
COMMENT	REGRADE
DATE	07-20-2023
REVISION NUMBER	
COMMENT	
DATE	
REVISION NUMBER	
COMMENT	
DATE	



201 COMMERCE DRIVE, UNIT 1
FORT COLLINS, COLORADO 80524
TEL 970.372.2255
www.sunrise-eng.com

TOWN OF HAYDEN
HAYDEN BUSINESS PARK - PHASE 1

OVERLOT GRADE PLAN

SET NO.	DESIGNED	DRAWN	CHECKED	SHEET NO.	
08834	TJS	TS/JC/DB	TLS	10 of 70	GR02

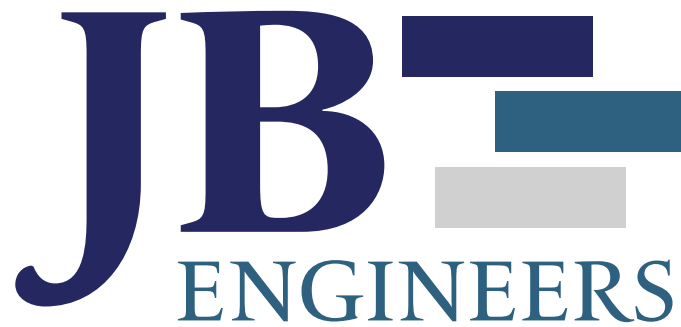
PRE-BID SIGN-IN SHEET

DATE: July 18, 2023 TIME: 11:00 am PLACE: Hayden Town Hall

Subject: Hayden Business Park Phase 1 – Pre-bid Meeting

ATTENDANCE:

NAME	ENTITY	PHONE #	EMAIL
Rob Richardson	SMH West	720-620-8474	Rob.Richardson@SMHWest.com
Kelly Federer	Duckels	970-879-6072	Kelly.federer@duckels.com
David Zehner	Precision Excavating Inc	970-629-5583	dzehner@precisionexcavatinginc.com
Ryan Danson	RCI	970-756-1150	ryan@rciconsulting.com
Call Candlin	CRC	970-756-5305	call@crcconstruction.com
Tony Brown	Root County R & B	970-870-5344	tbrown@co.root.co.us
Brian Loyd	Hid City Corp	720-717-2912	bloyd@hidcitycorp.us
Ken Fones	Fones Const LLC	970-761-0800	kenfones@gmail.com



GEOTECHNICAL ENGINEERING REPORT

Hayden Off-Site Sewer Project
Hayden, Colorado

July 21, 2023

Prepared For:

Sunrise Engineering
Attn: Cort Nickel
3001 South Lincoln Avenue
Steamboat Springs, CO

Prepared by:

JB Engineers
205 County Road 128A, #400
Cheyenne, WY 82007

July 21, 2023

Sunrise Engineering
Attn: Cort Nickel
3001 South Lincoln Avenue
Steamboat Springs, CO 80487
P. 970.875.6719
E. cnickel@sunrise-eng.com

E: Geotechnical Engineering Report
Hayden Off-Site Sewer Project
Hayden, Colorado
Cheyenne, Wyoming



Dear Mr. Nickel,

This report presents the results of the geotechnical engineering study for the off-site sewer project to support the proposed Hayden Business Park in Hayden, Colorado. Additional borings are planned along the alignment and will be performed at a later date and this report will be updated at that time. The geotechnical engineering report was prepared to evaluate the subsurface conditions at the site and provide geotechnical opinions and recommendations to support the proposed planning, design, and construction of the project. We completed our services referencing our proposal dated January 12, 2023 (Revised January 16, 2023).

The report has been prepared to summarize the data obtained during this study, and to present conclusions and recommendations based on the proposed construction and subsurface conditions encountered. A discussion of geotechnical engineering considerations, opinions and recommendations related to construction is included in this report.

JB Engineers

Jared J. Jung, PE
Senior Engineer
E. jared.jung@jb-engineers.com
P. 307.333.4374

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Appendix A: Boring Location Diagram
 Key to Symbols
 Unified Soil Classification System
 Boring Logs

Appendix B: Laboratory Results

PURPOSE AND SCOPE OF STUDY

This report presents the results of the geotechnical engineering study for the off-site sewer project to support the proposed Hayden Business Park in Hayden, Colorado. Additional borings are planned along the alignment and will be performed at a later date and this report will be updated at that time. The geotechnical engineering report was prepared to evaluate the subsurface conditions within the project area and provide geotechnical opinions and recommendations to support the proposed planning, design, and construction of the project. We completed our services referencing our proposal dated January 12, 2023 (Revised January 16, 2023).

The field exploration program consisted of drilling five exploratory bores to obtain information on the subsurface conditions along the proposed sewer line route. Additional borings were planned, however, during the field investigation CDOT stopped the drill crew during drilling requiring a permit to drill within the right-of-way. Additional borings are planned in the future and this report will be updated at that time. The boring locations are displayed on the Boring Location Diagram in Appendix A. Samples of the soil obtained during the field exploration were tested in the laboratory to determine physical and engineering characteristics. The results of the field and laboratory testing are presented herein.

The report has been prepared to summarize the data obtained during this study, and to present conclusions and recommendations based on the proposed construction and subsurface conditions encountered. A discussion of geotechnical engineering considerations, opinions, and recommendations related to construction is included in this report.

PROJECT INFORMATION

This project includes the construction of a sewer line to run from Hayden Business Park (JB Engineers Project 01-233104) and tie into the City of Hayden sewer system. Based on initial drawings, the sewer line will be approximately 2.25 miles in length from the northeast corner of the Business Park to the town tie-in. The new line will cross under and run along Highway 40 W to the new tie-in. Project sewer line depths are generally on the order of 10 feet but may vary up to 18 feet and will be 12-inches in diameter PVC.

FIELD EXPLORATION

JB Engineers conducted the field exploration on May 9, 2023. A total of five borings were drilled to approximate depths ranging from 16.5 feet to 26.5 feet. The borings were advanced through the on-site soils with a Simco truck-mounted drill rig using 6-inch diameter hollow-stem auger. A JB-Engineers staff engineer logged the borings. Samples of the subsurface soils were obtained using a 1-3/8 inch inside diameter split barrel sampler. The sampler was driven into the various strata using a 140 lb. hammer falling 30 inches. The total number of blows required to advance the sampler each of three consecutive 6-inch increments was recorded and the sum of the second and third 6-inch increments was recorded as the penetration resistance value or N value. The testing was performed in accordance with ASTM D1586, Split Barrel Sampling. Penetration resistance values provide an indication of the relative density of granular soils or consistency of fine-grained soils. Depths at which the samples were obtained, and the penetration resistance values are shown on the boring logs in Appendix A.

Groundwater levels were measured within the borings at the time of drilling. Groundwater was encountered in borings ranging from 4 to 10 feet at the time of drilling. The borings were backfilled with auger cuttings upon completion of drilling.

LABORATORY TESTING

Samples of soil obtained during the field exploration were observed and visually classified in accordance with ASTM D2487, which is based on the Unified Soil Classification System. Samples were selected for testing to determine the engineering and physical properties in general accordance with ASTM or other recognized procedures. The following table summarizes the tests performed for this project:

<u>Test</u>	<u>ASTM Designation</u>
Natural Water Content	D2216
Particle Size Analysis	D422/1140
Atterberg Limits	D4318
Soluble Sulfates	
pH	
Resistivity	

Results of all laboratory tests are summarized on the laboratory test summary, laboratory test data, and the boring logs in the appendices.

SUBSURFACE CONDITIONS

All borings consisted of varying sands. A brief description of each soil encountered is below.

CLAYEY SAND (SC) TO SILTY SAND (SM)

Sands with varying degrees of plasticity were encountered in each boring. The sands were generally clayey and at times contained lenses of gravel. The relative density of the sands ranged from loose to dense as indicated by SPT-N blow counts ranging from 4 blows per foot to greater than 50 blows per foot. The sands were brown to dark brown in color and varied in in-situ moisture contents from moist to wet. Laboratory data is presented in Appendix B.

GROUNDWATER

Groundwater was encountered in the borings ranging from 4 to 10 feet. Numerous factors contribute to fluctuations of groundwater levels, and evaluation of such factors is beyond the scope of this study. Groundwater may be anticipated during construction.

GEOTECHNICAL ENGINEERING OPINIONS AND RECOMMENDATIONS

The report's recommendations reflect our understanding of the proposed sewer line installation, existing topography, and subsurface conditions encountered. Subsurface conditions may vary from what was observed during our subsurface investigation, and the extent of this variation is unknown, and will not be known until construction which may impact construction cost/schedules. This report provides geotechnical data and recommendations that can be used for planning, design, and construction documents. The recommended design and construction criteria presented below must be observed for the geotechnical engineering aspects of the project. The following construction details should be considered when preparing the project documents.

EARTHWORK

Excavation/Trench Construction

The proposed sewer alignment is relatively level and follows the Highway 40 alignment for the majority of the alignment. We expect that the vertical alignment will be relatively unchanged. Maximum excavations are anticipated to be on the order of 15 feet. The following general recommendations shall be followed:

- Remove all unsuitable material from sewer alignment.
- Groundwater was encountered at the time of drilling. Dewatering prior to excavation must be anticipated during construction. If dewatering becomes necessary, dewatering must lower the groundwater level a minimum of two feet below excavation floors to reduce the potential of groundwater affecting the stability of the soils in the excavation bottoms.
- All fill and backfill must be approved by the geotechnical engineer. On-site sand soils encountered within the borings can be used as trench backfill. All material must be processed into pieces smaller than three inches prior to being used as fill.
- Bedding material shall be free of clods, oversize rocks, and frozen materials.
- Excavations for the construction of the sewer line will extend into sands with varying amounts of gravel. Conventional heavy-duty earth moving equipment will be sufficient for the proposed excavations at the site. While it is the responsibility of the contractor to provide safe working conditions and to comply with OSHA standards in connection with underground excavations, the following guidelines are provided for planning purposes. The sandy soils should be considered an OSHA Type “C” material. The subgrade soil and trench conditions must be evaluated during construction by the contractor’s competent person.
- Plan excavations with water collection points and utilize conventional sumps and pumps to remove nuisance water runoff or precipitation. If site soil excavations are not immediately backfilled, they may degrade when exposed to runoff and require over-excavation and replacement with structural fill. We recommend construction activities and excavation backfilling be performed as rapidly as possible following excavation to reduce the potential for subgrades to degrade under construction traffic.

Compaction Requirements

Place fill in thin (8-inch maximum), uniform lifts and compacted to the following minimum percentages of the maximum dry unit weight as determined by ASTM D698 (Standard Proctor):

Area	Compaction (% of ASTM D698)
Utility Trenches	95

Place all on-site fill material to a moisture content to achieve compaction as determined by ASTM D698. The following shall be implemented during construction:

- **Utility Trench Backfill:** One compaction test every 100 lineal feet (lf) of trench per each one-foot lift of backfill.

The contractor must understand and plan for the time required to process soil to meet the report requirements. Difficulty achieving required compaction may impact construction costs, schedules, and other project aspects. Allowing time and space (i.e., lay-down area) to process excavated site soil and facilitate proper moisture conditioning during dry weather is critical if the contractor plans to re-use the site soil as fill. Proper moisture conditioning or drying can help reduce compaction efforts and the need to import dry soil or aggregate.

SITE CONCRETE/CORROSION, pH AND RESISTIVITY

The concentration of water-soluble sulfates measured in a sample of soil obtained at a depth of five feet was 0.14%. This concentration of water-soluble sulfates represents a moderate degree of attack on concrete exposed to these materials. This degree of attack is based on the scale presented in ACI Manual of Concrete Practice, Section 225R, Table 6.5 of mild, moderate, severe, and very severe. We recommend using Type I or II cement, and a minimum compressive strength of 4,000 psi. The pH level for the same sample was measured at 7.5 which indicates a neutral to alkaline soil that bears no negative

effects on metals. Lastly, resistivity readings for the soil types encountered pose no risk of corrosion to metal fittings required of sewer and water lines.

LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering practices in this area for use by the client for design purposes. The conclusions and recommendations submitted in this report are based upon the design data submitted to JB Engineers, data obtained from the exploratory borings drilled at the locations indicated on the Boring Location Diagram, and the proposed construction discussed in this report. The nature and extent of subsurface variations across the site may not become evident until construction. During construction, if fill, soil, bedrock or water conditions appear to be different from those described herein, this office should be advised at once so that we may re-evaluate the recommendations made.

This report has been prepared for the exclusive use by our client for design purposes. We are not responsible for technical interpretations by others of our exploratory information which has not been described or documented in this report. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications of the recommendations presented herein. We recommend on-site observation of excavations and testing of all fills by a representative of JB Engineers.

Appendix A – Boring Location Diagram
Key to Symbols
Unified Soil Classification System
Boring Logs





BORING LOCATION DIAGRAM
Hayden Off-Site Sewer Project
Hayden, Colorado

Legend

 BORING LOCATION

Project No.01-23015



NOT TO SCALE

CLIENT Sunrise Engineering

PROJECT NAME Hayden Off-Site Sewer Project

PROJECT NUMBER 01-23015

PROJECT LOCATION Highway 40 W, Hayden,

LITHOLOGIC SYMBOLS (Unified Soil Classification System)



SC: USCS Clayey Sand



SM: USCS Silty Sand



TOPSOIL: Topsoil

CO

SAMPLER SYMBOLS



Split Spoon

WELL CONSTRUCTION SYMBOLS

ABBREVIATIONS

LL - LIQUID LIMIT (%)
 PI - PLASTIC INDEX (%)
 W - MOISTURE CONTENT (%)
 DD - DRY DENSITY (PCF)
 NP - NON PLASTIC
 -200 - PERCENT PASSING NO. 200 SIEVE
 PP - POCKET PENETROMETER (TSF)

TV - TORVANE
 PID - PHOTOIONIZATION DETECTOR
 UC - UNCONFINED COMPRESSION
 ppm - PARTS PER MILLION

▽ Water Level at Time
 Drilling, or as Shown

▼ Water Level at End of
 Drilling, or as Shown

▼ Water Level After 24
 Hours, or as Shown

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL NAMES
COARSE GRAINED SOILS	GRAVELS	CLEAN GRAVELS		GW	Well-Graded Gravel, Gravel-Sand Mixtures
				GP	Poorly-Graded Gravel, Gravel-Sand Mixtures
		GRAVELS WITH FINES		GM	Silty Gravel, Gravel-Sand -Silt Mixtures
				GC	Clayey Gravel, Gravel-Sand -Silt Mixtures
	SANDS	CLEAN SANDS		SW	Well-Graded Sand, Gravelly Sand.
				SP	Poorly-Graded Sand, Gravelly Sand.
		SANDS WITH FINES		SM	Silty Sand, Sand-Silt Mixtures
				SC	Clayey Sand, Sand-Clay Mixtures
FINE GRAINED SOILS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50%			ML	Inorganic Silt, Sandy or Clayey Silt.
				CL	Inorganic Clay of Low to Medium Plasticity, Sandy or Silty Clay
				OL	Organic Silt and Clay of Low Plasticity.
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%			MH	Inorganic Silt, Mica-ceous Silt, Plastic Silt.
				CH	Inorganic Clay of High Plasticity, Fat Clay.
				OH	Organic Clay of Medium to High Plasticity.
				PT	Peat, Muck and Other Highly Organic Soils.

BORING LOG SYMBOLS

	Standard 2-Inch OD Split-Spoon Sample
	California Modified 3-Inch OD Split-Spoon Sample
	Rock Core
	Shelby Tube 3-Inch OD Undisturbed Sample

GROUNDWATER SYMBOLS

	Groundwater After 24 Hours
(7-3-07)	Indicates Date of Reading
	Groundwater At Time of Drilling

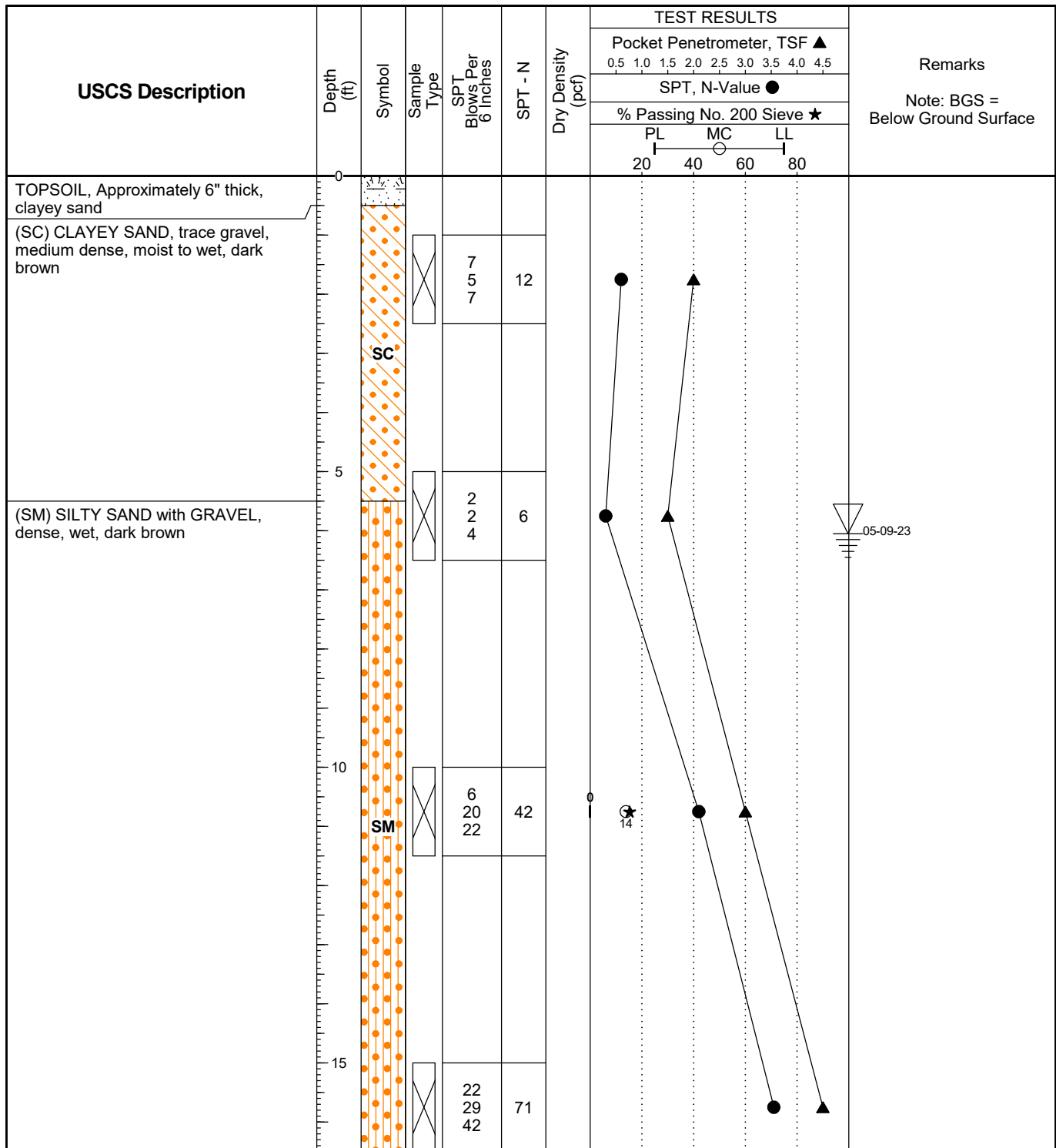
TEST PIT LOG SYMBOLS

	Baggie Sample
	Bulk Sample
	Ring Sample

Shorthand Notation:
BGS = Below Existing Ground Surface
N.E. None Encountered



Hayden Sewer Line01-23015



Borehole Terminated at 16.5 Feet.

Project Name: Hayden Off-Site Sewer Project

Project Number: 01-23015

Client: Sunrise Engineering

Date Drilled: 5/9/2023

Drill Rig:

Borehole Dia.: 4

Groundwater Depth: 6'

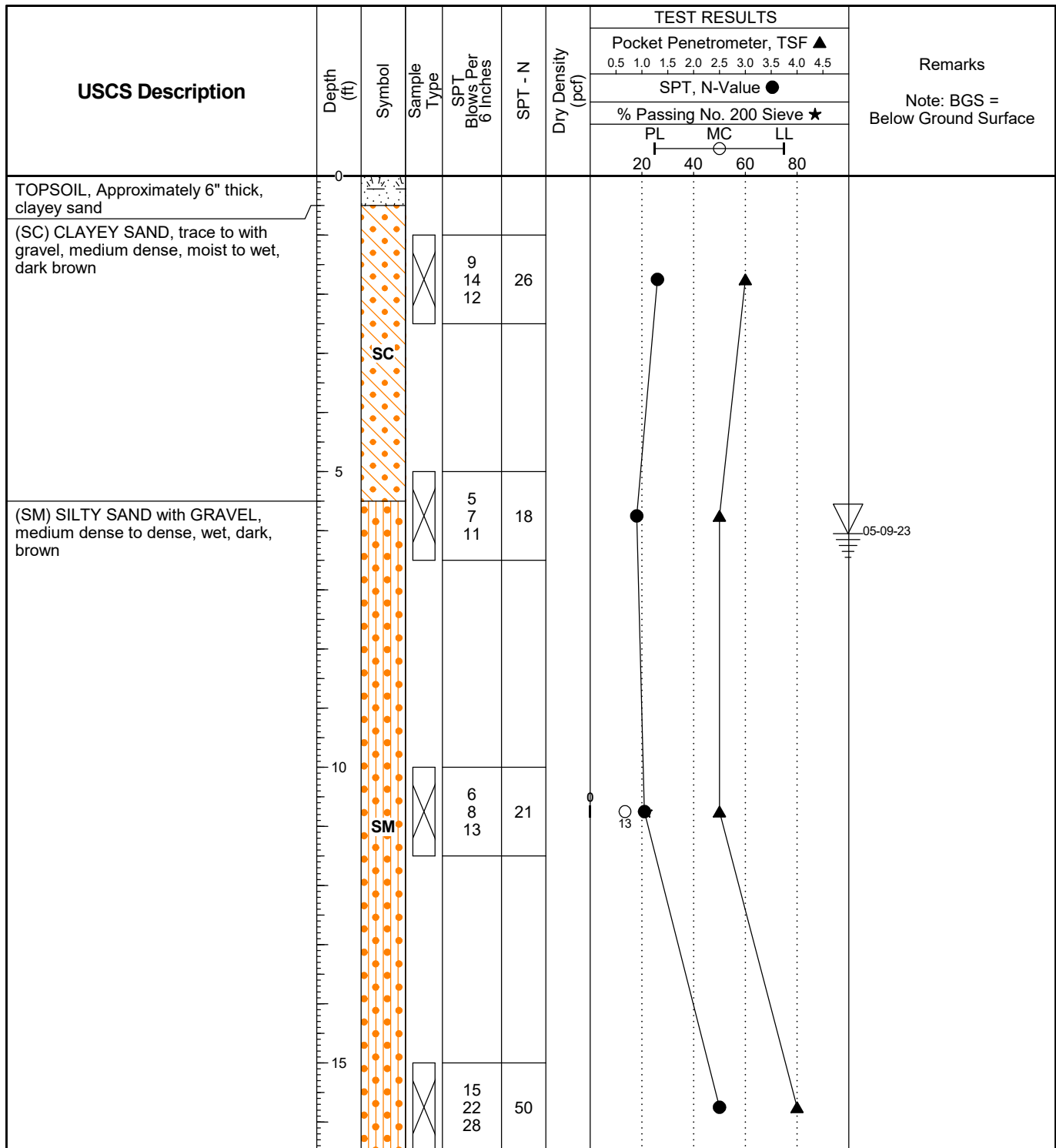
Drilled By:

Logged By: S. Houston

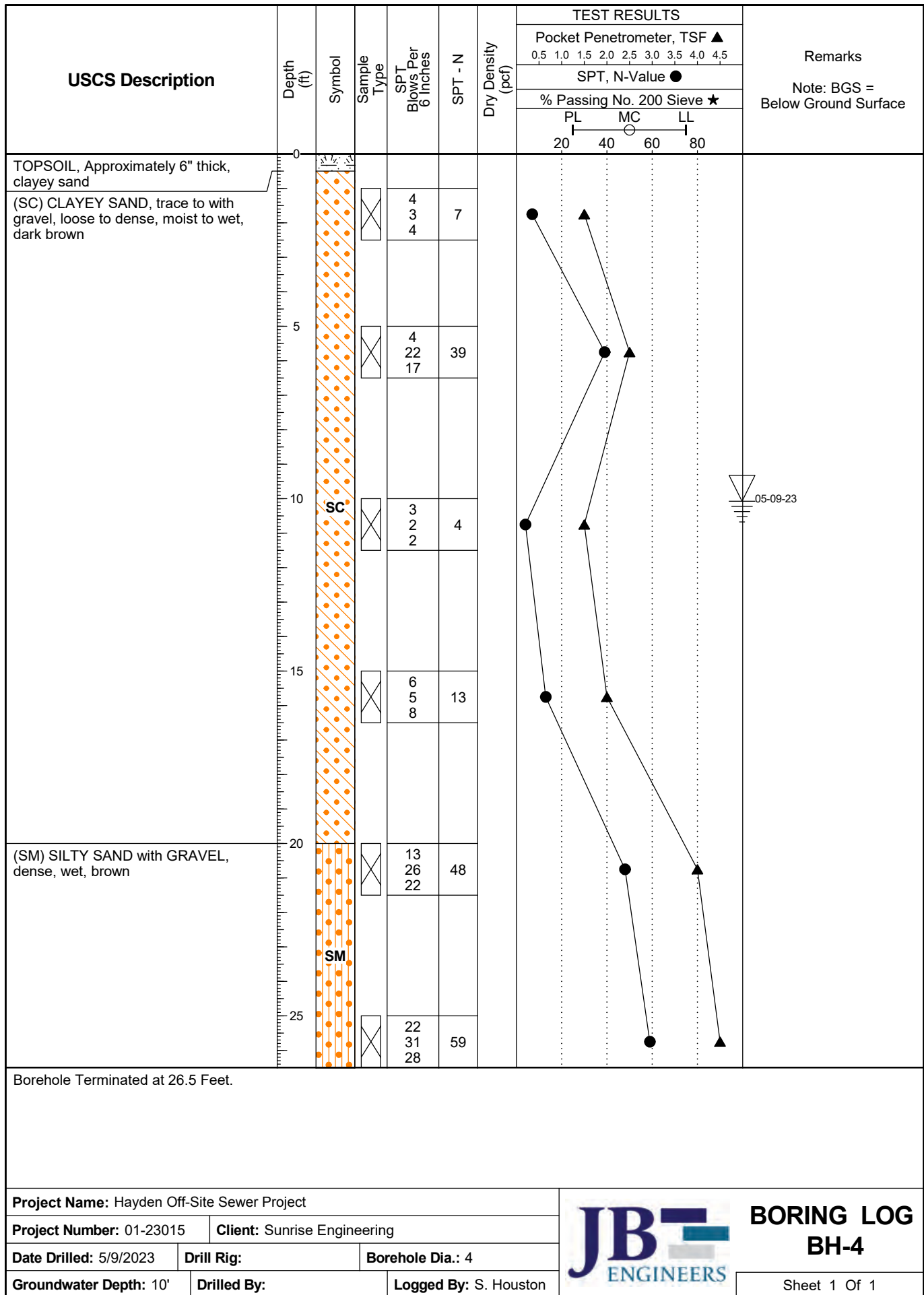


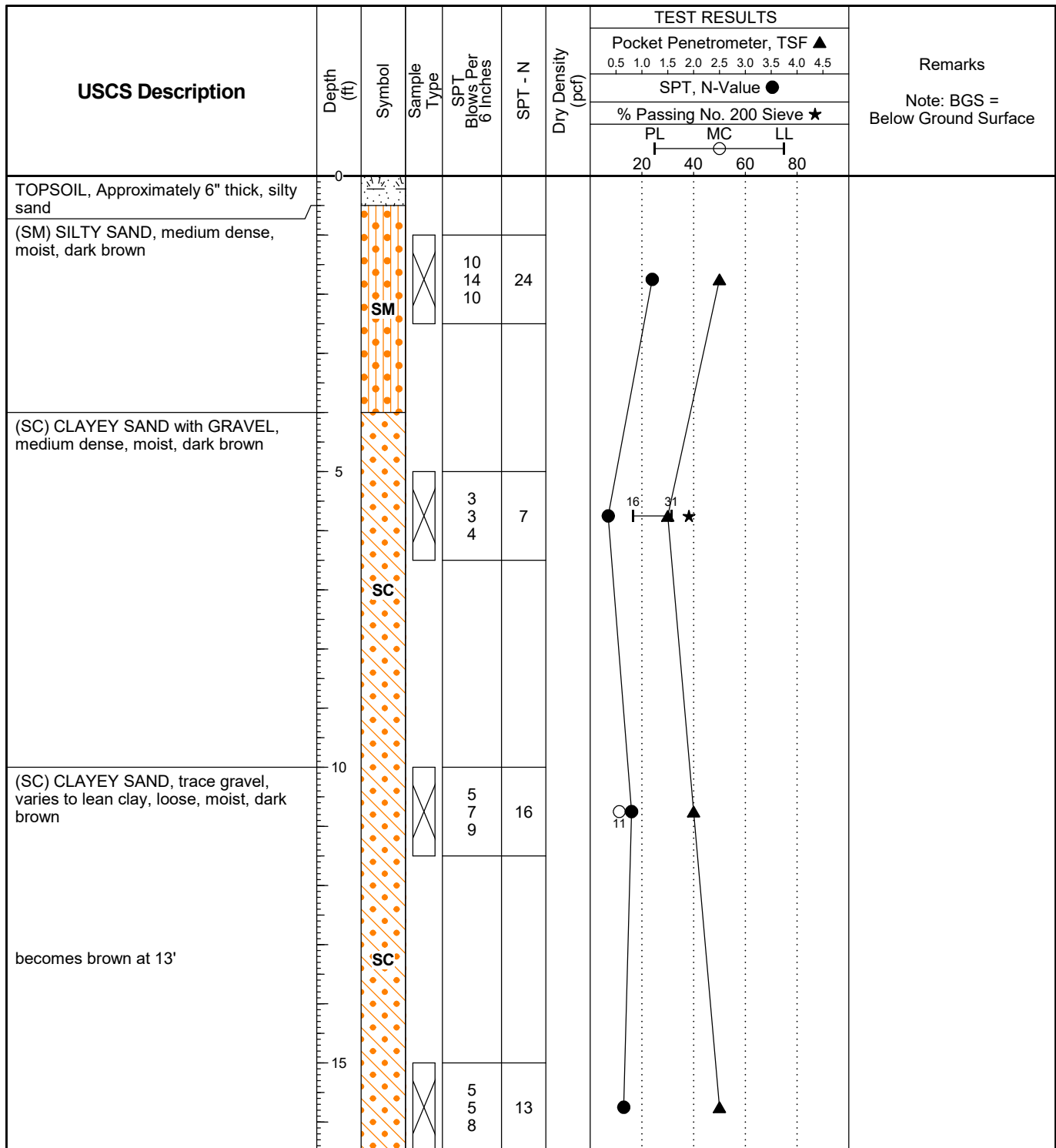
**BORING LOG
BH-2**

Sheet 1 Of 1



Borehole Terminated at 16.5 Feet.





Borehole Terminated at 16.5 Feet.

Project Name: Hayden Off-Site Sewer Project

Project Number: 01-23015

Client: Sunrise Engineering

Date Drilled: 5/9/2023

Drill Rig:

Borehole Dia.: 4

Groundwater Depth: N.E.

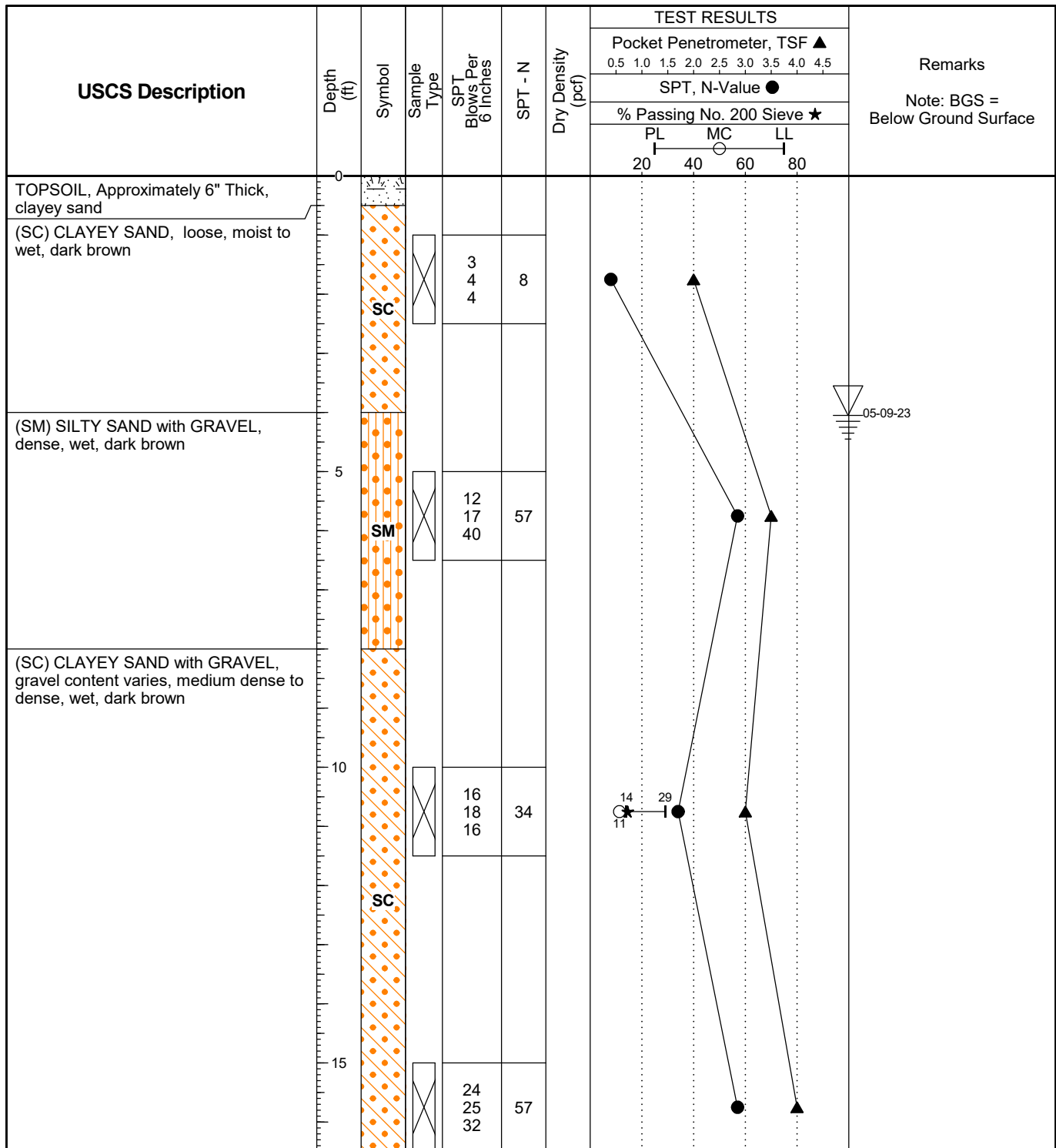
Drilled By:

Logged By: S. Houston



**BORING LOG
BH-6**

Sheet 1 Of 1



Borehole Terminated at 16.5 Feet.

Project Name: Hayden Off-Site Sewer Project

Project Number: 01-23015

Client: Sunrise Engineering

Date Drilled: 5/9/2023

Drill Rig:

Borehole Dia.: 4

Groundwater Depth: 4'

Drilled By:

Logged By: S. Houston



**BORING LOG
BH-12**

Sheet 1 Of 1

Appendix B – Laboratory Test Data





SUMMARY OF LABORATORY RESULTS

CLIENT Sunrise Engineering

PROJECT NAME Hayden Off-Site Sewer Project

PROJECT NUMBER 01-23015

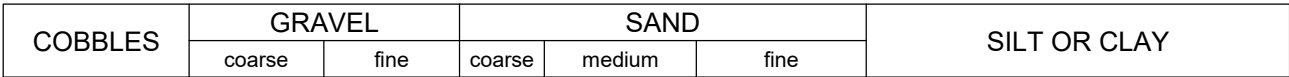
PROJECT LOCATION Highway 40 W, Hayden, CO

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Dry Density (pcf)	Satur-ation (%)	Void Ratio
BH-2	10.0	NP	NP	NP	37.5	15	SM	13.8			
BH-3	10.0	NP	NP	NP	25	22	SM	13.5			
BH-6	5.0	31	16	15	9.5	38	SC				
BH-6	10.0							11.2			
BH-12	10.0	29	14	15	37.5	15	GC	11.3			



PROJECT NAME Hayden Off-Site Sewer Project

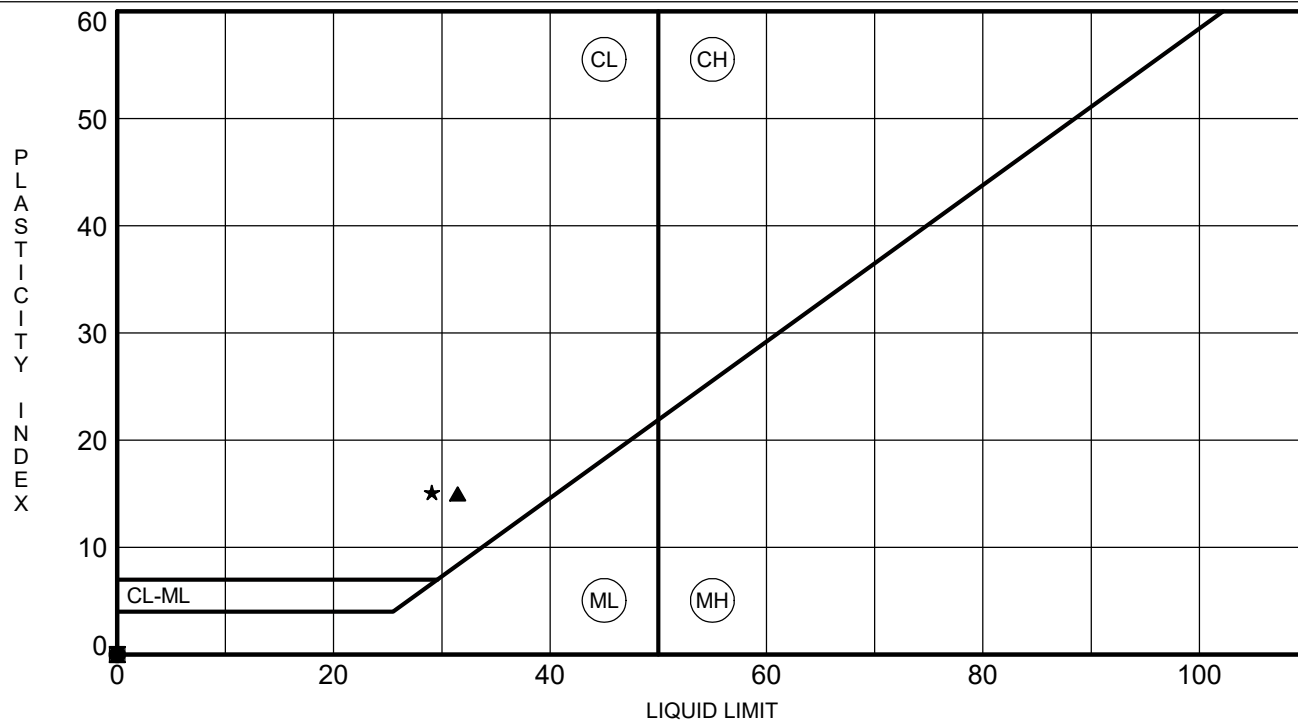
PROJECT LOCATION Highway 40 W, Hayden, CO

[illegible]



PROJECT NAME Hayden Off-Site Sewer Project

PROJECT LOCATION Highway 40 W, Hayden, CO

[illegible]

AS-CONSTRUCTED DIGITAL PLANS ARE REQUIRED FOR ALL UTILITY INSTALLATIONS IN CDOT RIGHT-OF-WAY

- All utility installations, within CDOT Right of Way (ROW), shall be collected using CDOT's mobile application (PointMan).
- Please contact CDOT at cdotpointman@gmail.com in order to obtain new login and password information.
- Download PointMan mobile application through the Apple Store (iOS) or Google Play (Android).
- Please watch the following quick start guide and introduction videos that can be found at the following link: [Training Videos](#)
- Please refer to the "As-Constructed" Supplemental Requirements for a more detailed reference guide to the collection utility as-built data. To obtain the full document select the link here: ["As-Constructed" Supplemental Requirements](#)

Special Provisions - Section 3.3.4.6.2 and 3.3.4.3













COLORADO
Department of Transportation

2829 W. Howard Place
Denver, CO 80204-2305

1. Term #116 - Rule 3.3.4.6.2 - CDOT Utility as-constructed/Out of Service requirements, data content and accuracy

- 1.1.** All utility installations and out of service lines, within CDOT Right of Way (ROW), shall be collected using CDOT's mobile application (PointMan). If required please contact CDOT at cdotpointman@gmail.com to obtain login and password information. Download the PointMan mobile application through the Apple Store (iOS) or Google Play (Android). Finally, watch the following quick start guide, the video can be found at the following link: <https://youtu.be/X-tMvnK7vZw>

1.2. High accuracy equipment requirement:

Supported GNSS Receivers	
	Trimble DA1/DA2 (Catalyst)
	Trimble R2 (RTK)
	Trimble R8 (current version is R8s)
	Trimble R10
	Trimble R12
	Trimble SPS985 (current version is SPS986)
	Blue Star RTK
	Bad Elf Flex RTK
	Leica RTK – Android only
	Emlid Reach RS2 RTK

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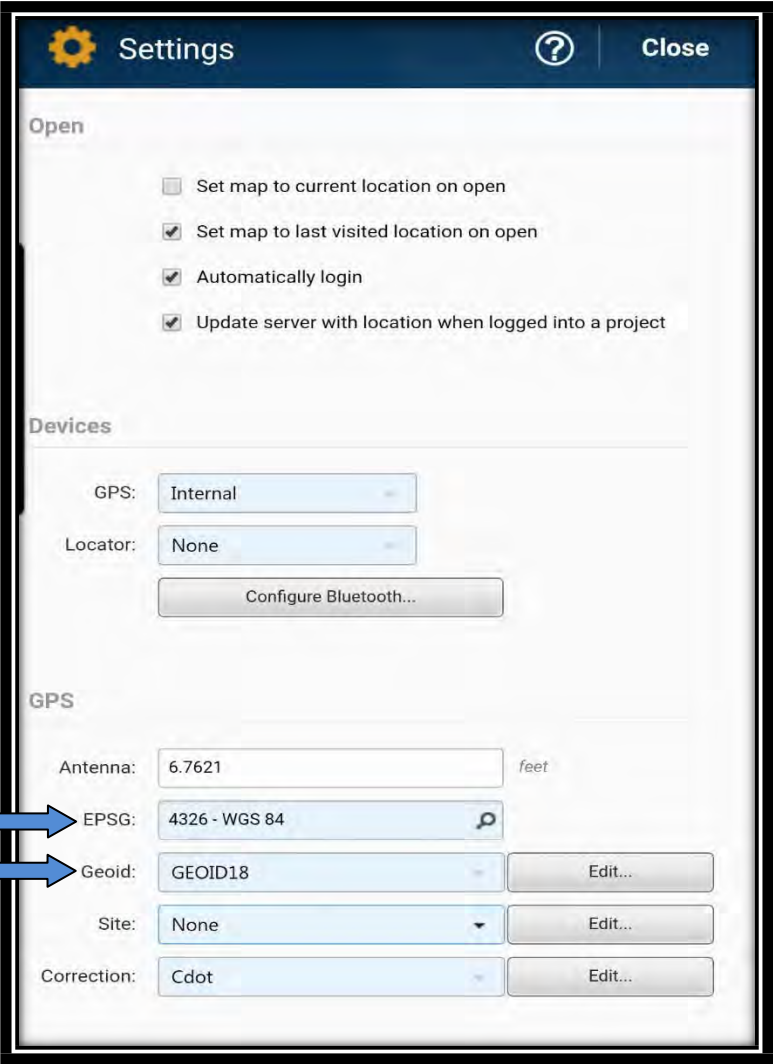
Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

One of the following GNSS receivers listed in Section 1.2 is acceptable to use at this time with CDOT's mobile application. Deviation from CDOT's list of accepted GNSS receivers must be requested and approved by the department in writing prior to submission of as-built data.

1.3. Projections and Coordinate Systems

Horizontal Datum: World Geodetic System (WGS84), select EPSG 4326 or None is the default for WGS 84 within the PointMan settings menu.

Vertical Datum: The North American Vertical Datum of 1988, (NAVD 88) RTK GPS is an acceptable method to derive NAVD 88 elevations and is the Vertical Datum that is used for all projects performed for CDOT. Select the latest Geoid model from the PointMan mobile application in order to compute orthometric heights (ground corrected elevations). The latest Geoid model that is acceptable is Geoid18 and available within the PointMan settings menu.



The screenshot displays the 'Settings' screen of the PointMan application. The 'Open' section contains four checkboxes: 'Set map to current location on open' (unchecked), 'Set map to last visited location on open' (checked), 'Automatically login' (checked), and 'Update server with location when logged into a project' (checked). The 'Devices' section includes dropdown menus for 'GPS' (set to 'Internal') and 'Locator' (set to 'None'), along with a 'Configure Bluetooth...' button. The 'GPS' section features several configuration fields: 'Antenna' (6.7621 feet), 'EPSG' (4326 - WGS 84), 'Geoid' (GEOID18), 'Site' (None), and 'Correction' (Cdot). Two blue arrows point to the 'EPSG' and 'Geoid' dropdown menus, highlighting the required settings. Each of these dropdowns has an 'Edit...' button to its right.

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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

1.4. Positional Accuracy Specification

CDOT requires positional accuracy 1, 2 or 3 for all utilities installed within CDOT ROW. The designated Accuracy Level designation shown in **Table 1** below. Utilizing CDOT's mobile application pedigree (observation record) will assist in determining the accuracy levels assigned to the specific permitted installation by the utility companies' representative responsible for collection of as-built data.

Table 1. Positional Accuracy Requirements

Positional Accuracy Level	Positional Accuracy ¹ (English Units)	Positional Accuracy ^{1,2} (SI Units)
1	0.1 feet	25 mm
2	0.2 feet	50 mm
3	0.3 feet	100 mm
4	1 foot	300 mm
5	3 feet	1000 mm
0	Indeterminate	Indeterminate

¹ At the 95% confidence level, using the root-mean-square error (RMSE) in accordance with FGDC-STD-007.3-1998. "Positional Accuracy" is in direct reference to the actual geodetic positional coordinates as referenced to the National Spatial Reference System (NSRS) maintained by the National Oceanic and Atmospheric Administration (NOAA) National Geodetic Survey (NGS). Geodetic positional coordinates (latitude, longitude, and orthometric heights) reference to the official U.S. datums, currently, the North American Datum of 1983 (NAD 83) and the North American Vertical Datum of 1988 (NAVD 88).

Rigid aboveground features are subject to the same positional accuracy requirements as underground features. The positional accuracy of suspended aerial cables and wires is variable due to environmental factors and therefore shall be classified as Level 0, except at the points where they are anchored to support structures such as poles.

For linear features, the depicted position must meet the tolerances as specified in **Table 1** at every position along the length of the feature in order to be designated at the appropriate accuracy level.



Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.0 Utility Type Feature Codes – Table 2

Utility Type	Feature Code	Description of Utilities
Test hole Photo Test hole	5950 17	Point - Test hole physically locating X,Y,Z underground facility location.
Proposed running line	6001 or 6075	Line segment code 6001 – Surface elevation of proposed HDD bore. Point - 6075 location bore log depth required for each observed point.
Communication	4210 4410 4211 4270- 4279	Line segment - All communication facilities, including fiber optic (4211), copper (4210), coaxial (4410), including appurtenances within defined size parameter. Single point items like vaults and hand holes use code 4273-4279.
Gas	4510 4511 4575- 4599	Line segment – Low pressure (4510) High pressure (4511) Natural gas transmission, distribution, service lines, and appurtenances within defined size parameter. Single shot gas line data including gas meters shall use 4575-4599
Electric	4310 4373- 4379	Line segment - Secondary electric or higher voltage. Single point shots including pull boxes and power poles use code 4373-4379
Pipe (Oil)	4610 or 4611	Line segment - Pipeline facilities, including crude oil, refined oil, or all other types of oil pipeline transmission, distribution, service lines, and appurtenances within defined size parameter.
Propane	4512	Line segment - Propane transmission, distribution and service lines, and appurtenances within defined size. .parameter
Sanitary Sewer	4811 4877	Line segment - Sanitary sewer facilities including all mains, collection system, forcemains, services and leads, including appurtenances within defined size parameter. (Combined sewer is classified as sanitary sewer). Manholes use code 4877.
Surface Elevation	6075	Point – X,Y,Z single observation for surface elevation.

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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

Storm Sewer	2712 2774- 2779	Line segment - Storm sewer facilities including all mains and collection system, including appurtenances within defined size parameter. (Excludes underdrain). Use codes 2774-2779 for single point shots including manholes and inlets.
Water	4710 4780 4775 4778 4779	Line segment - Water transmission, distribution, service lines, and appurtenances within defined size parameter. (Excludes irrigations systems). Water meters, water values, manholes see the codes 4775-4784.
Unknown	6075 (Point) or 6001 Line	Point and Line segment - This designation can be used for those facilities not covered by the above feature codes, including but not limited to industrial facilities of all types and discovered utilities where the type of utility is unknown.
Retired or Abandoned utility lines or point features	25 (Line) 26 (Point)	Point and Line segment - This designation can be used for those retired or abandoned facilities to remain in CDOT's Right of Way. Permission to leave facilities in CDOT's Right of Way and must be granted in writing per Section 2.3.7.2.

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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.1 - General Observations Standards

1. All active and out of service transmission, distribution and collector system main lines
 - a. Start and end points
 - b. Minimum of every 25 feet with the following additional points
 - i. Deviations in installation alignment (horizontal and vertical) including but not limited to the following:
 - a. Intentional changes in geometry such as changing direction to avoid obstacles
 - b. Fittings such as elbows (horizontal and vertical)
 - ii. Changes in facility characteristics (e.g. Change in size, material, number or pair, encasement size, material, etc...)
 - iii. Start and end point for vaults
2. Appurtenances installed concurrently with new main installations, whereas appurtenances are defined as service leads and stubs.
 - a. Tap-in at the main and at (near) the right of way line
3. New appurtenances from existing mains
 - a. All size and material types shall be recorded for each utility type
 - b. Tap-in at main and at (near) the right of way line
4. Transverse utility crossings installed via trenchless methods
 - a. All qualified utilities crossing roads as described in Section 2.4
 - b. 25 foot intervals across pavement sections when safely achievable



Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.2 Direct Observations (Figure 2)

In a direct observation, a field technician places the data capture instrument directly on the utility and records the X, Y, Z position. This type of observation is commonly achievable if utilities are installed via open excavation methods, or at bore pits and tie in locations where trenchless technologies are used. Data collection of directly observed utilities yield the highest level of confidence, but requires daily coordination with construction activities so the field technician can physically observe the utility at the required locations prior to backfilling.

Figure 2



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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

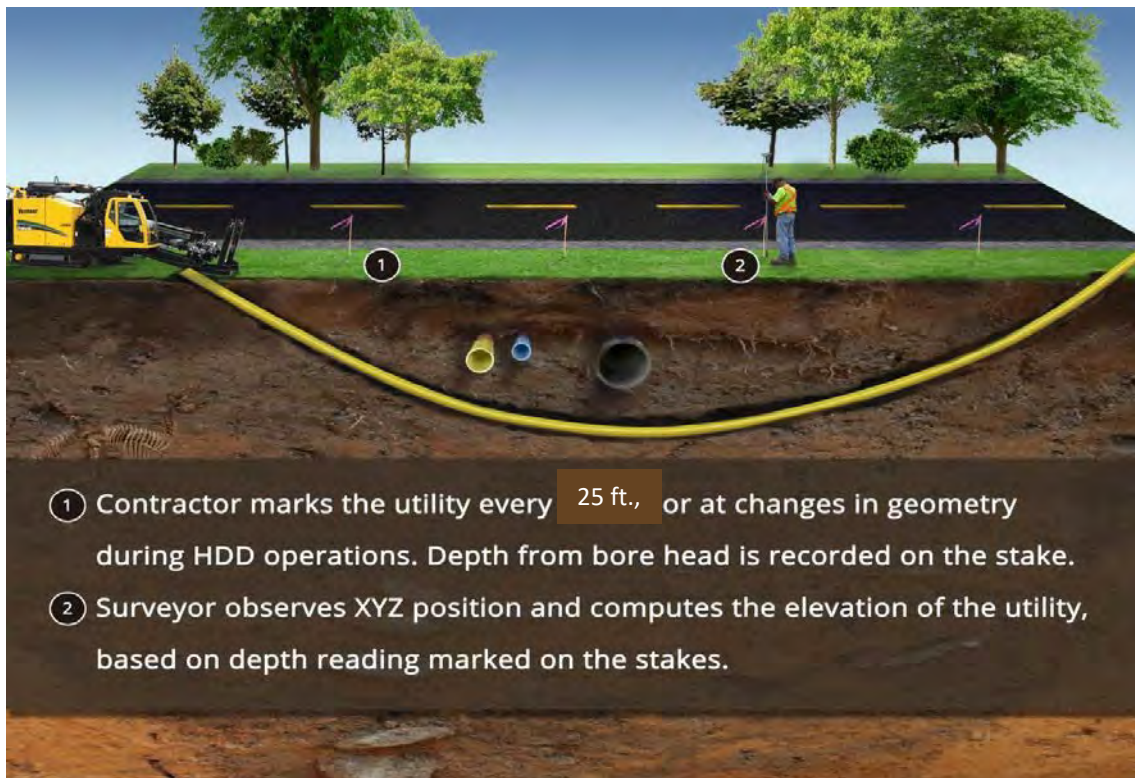
2.3 Indirect Observations (Figure 3)

Common installation methods include various trenchless technologies, which prevent the direct observation of installed utilities. The following are common methods of coordination of data collection aimed at producing high-level data collection results.

Field Witnessing: For trenchless installation methods, observe and capture all tie-in locations, bore pits, or any other areas where the utility is directly exposed. Construction crews must witness the location and depth of the installed utility during mainline trenchless operations. Field witnessing needs to consist of physical marks in the field so that a field technician can record an observation at the centerline of the utility on the ground, then compute the elevation of the utility by subtracting the field-witnessed depth from the ground elevation.

Figure 3 is an example of field witnessing a trenchless utility installation. A horizontal directional drilled (HDD) fiber optic line is documented with a mark on the centerline of the utility with the ground surface depth recorded within CDOT's mobile application. The reading from the bore head is also required to be documented within CDOT's mobile application (Use **Table 2** for Proposed running line point code that corresponded with the type of utility being observed, for example use 4211 for Fiber Optic to record bore head depth). Utility companies must record a spatial position (X, Y, Z location) at the ground surface, and then compute the elevation of the top of the utility.

Figure 3

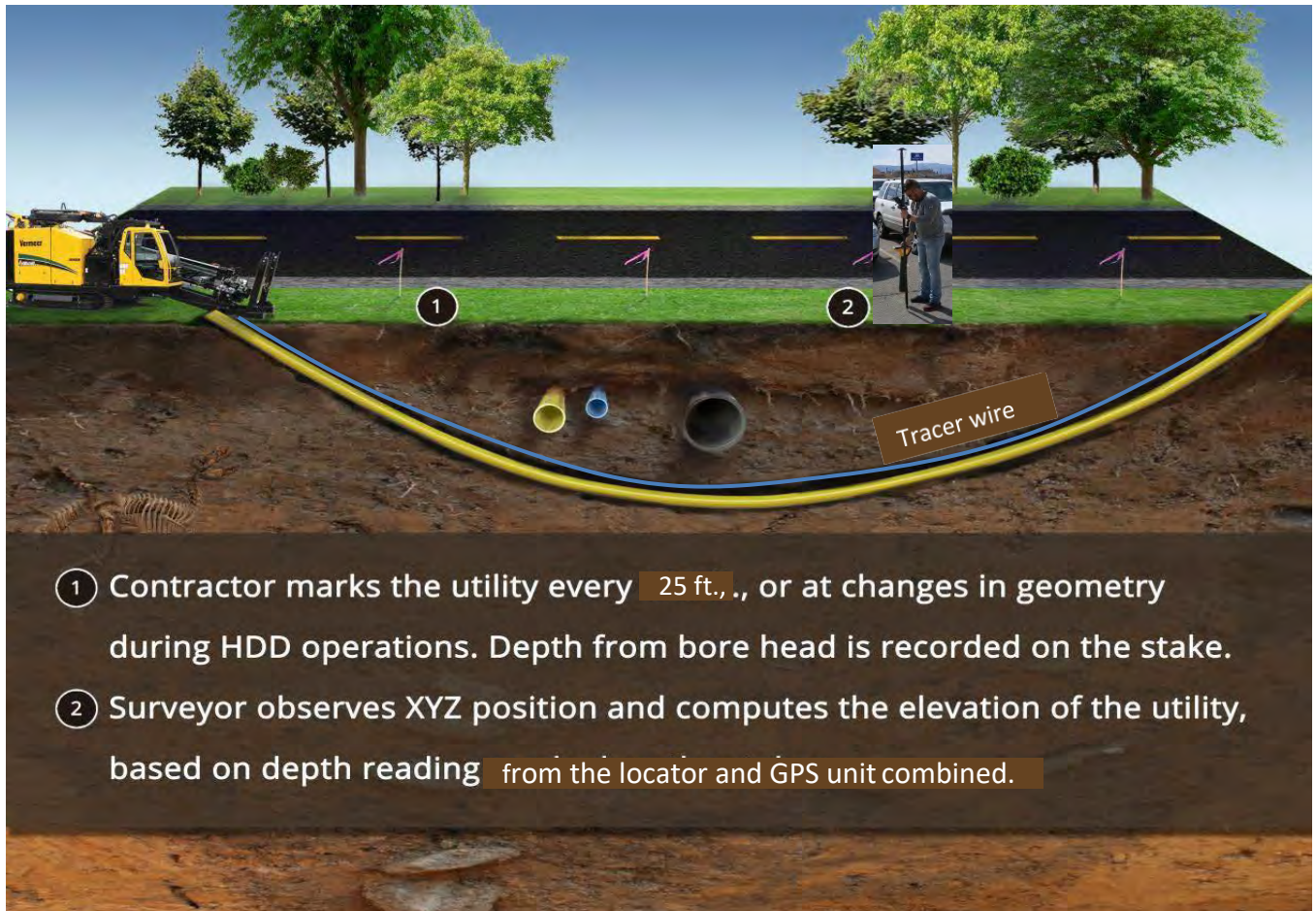


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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

Indirect as-constructed observations with tracer wire must include an Active signal (Transmitter and Receiver). The Receiver/Locator must be paired with PointMan and an approved GNSS antenna, see list Section 1.2. Instructions as to pair locators and GPS antennas can be found at the following link: <https://support.prostarcorp.com/index.php?title=PointMan> and refer to sections “Pairing GPS Tools” and “Pairing a Locator”.



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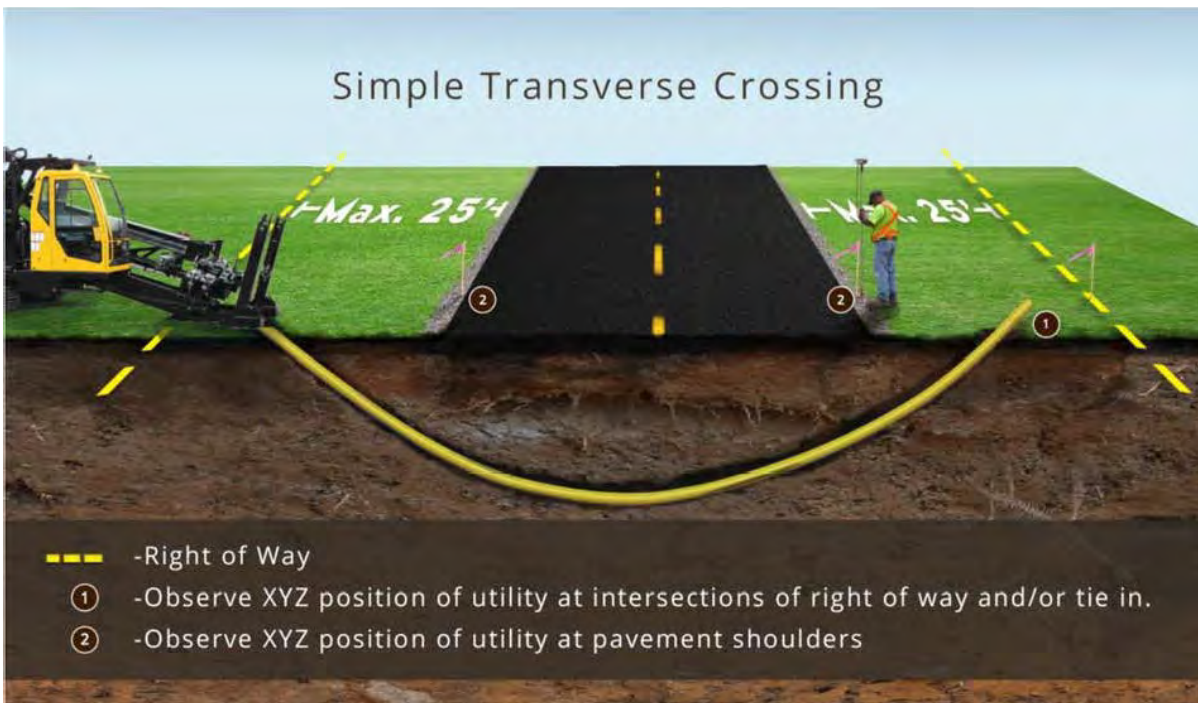


Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.4 Simple Transverse Utility Crossings

Certain transverse utility crossings may require deviation from the standards in order to maintain a safe work environment. If there are no safe methods of field witnessing the boring location and depth within a pavement section, collect an observation at or near the edge of pavement before crossing the pavement section. Then continue by collecting a observations at or near the opposite edge of pavement and continue per the normal observation procedures previously described, see **Figure 4** below:

Figure 4



2.5 Unique Requirements for Trenchless Installations on Transverse Utility Crossings

All other transverse utility crossings that are installed using methods conducive to a direct observation requiring observations to be collected at safe intervals when crossing a pavement section. Additionally, all utilities will be directly observed when installed using a method that support direct observation.

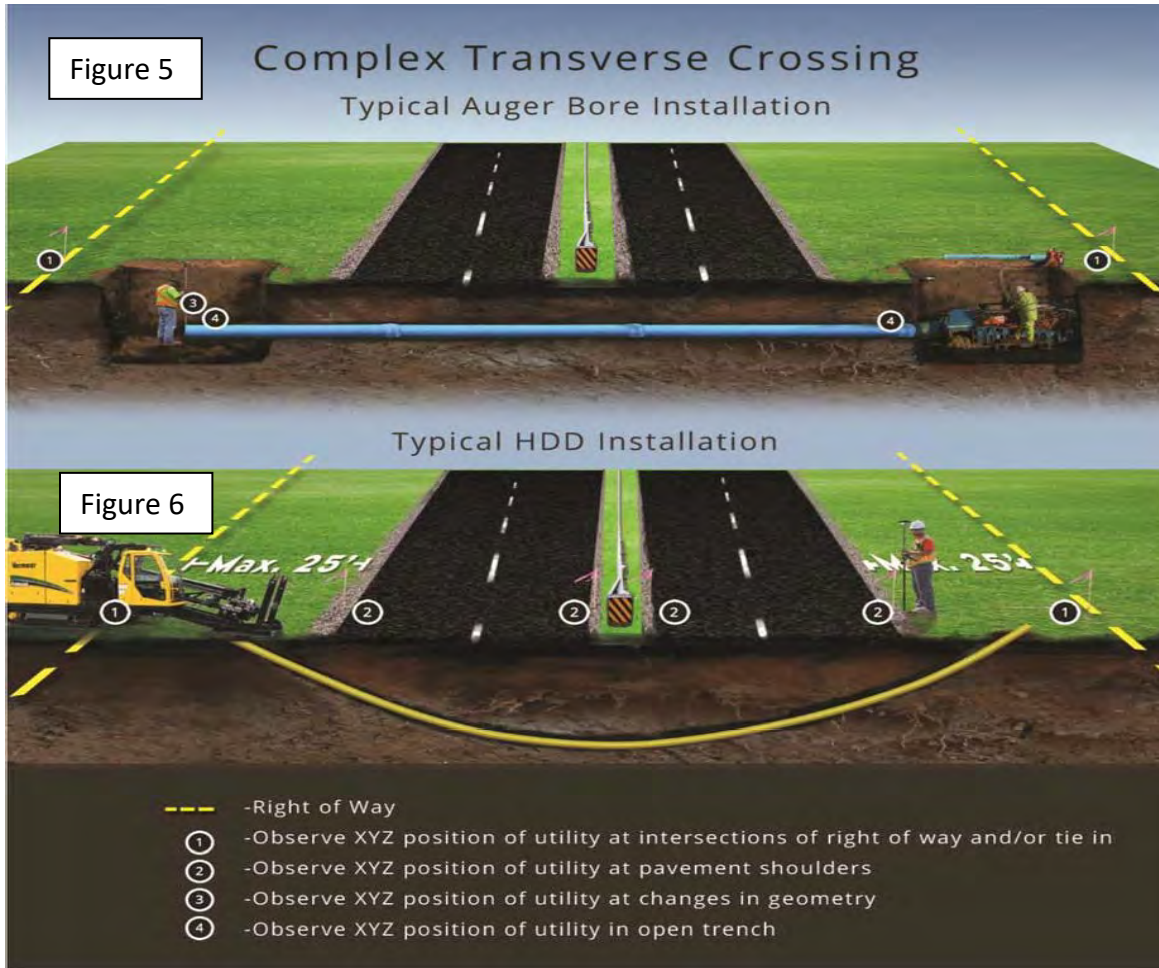
All utilities installed by trenchless technologies must be observed directly above the installed utility with the elevation computed from the best available depth readings (typically depths read from bore head during installation or tracer wire and EM locating device). The accuracy of the depth readings to the installed utility will vary depending on the type of equipment used during installation.

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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

Direct observations are required where utilities are exposed; including tie-in locations, bore pits, hand holes, and manholes. Alignment and depth will be documented during boring operations at the required interval. Some form of field witnessing must be used to mark the horizontal location and depth of the utility based on readings from the equipment being used. Then, the utility company can observe each marked location and compute the elevation of the installed facility based on the recorded depth readings at each observed location. At a minimum, alignment and depths must be physically documented at an interval of not more than 25 feet and at all changes in horizontal and vertical alignment.



The more observations collected along a utility line will increase the accuracy of the true three-dimensional alignment. For example, long and deep bores could create a parabolic curve shaped utility that will not be accurately represented with point spacing at 50 feet. Use professional judgement and collect additional points at a closer interval to generate a more representative geometry of the utility. **Figure 5** depicts a complex transverse crossing and **Figure 6** depicts a Typical HDD Installation.

Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

PDF as-built submittal process: Geospatially referenced as-built drawing files shall be uploaded through CDOT's mobile application (PointMan). While the mobile application is open, select a new place mark within your project limits and choose "File As built Plans". This will allow a the establishment of geospatial as-built location on the map. Step 2 provide the Permit No. and any miscellaneous notes regarding the project description. Step 3 – select "OK" and processed to the select the stored location of the as-built PDF file. Step 4 select "OK" and allow the file to upload to CDOT's database.

Step 1 and 2

Prod7\CDOT New

New Place Mark

Component: ☐ - File As built Plans

Code:

Permit No:

Sub Account:

Project Number:

Misc Notes:

OK Cancel

Select larger area.

Step 3

Prod7\CDOT New

Open File

/

- airmore
- Alarms
- Android
- audio_converter
- Audiobooks
- Backup
- bcnav
- bcr
- CamCard
- Catalyst
- com.apowersoft
- com.facebook.orca
- DCIM
- Documents
- Download
- GeoData
- GROWTH_TEST
- Locator

OK Cancel

Step 4

Prod7\CDOT New

3190279_070B MP 4_ PSCo 8in River road reinforc...

Send

Properties

Type: File Deeds

File: [3190279_070B MP 4_ PSCo 8in River road reinforcement \(2\).pdf](#)

Comment:

Code:

Pedigree

Created: 1/7/2020 1:39 PM

Device: Chrome 79.0.3945.88

User: RMartindale

Latitude:

Longitude:

Select larger area.

Edit Close

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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

Term # 112 - Rule 3.3.4.3 Guidance for Plan and Profile Test Hole and Existing Utility data collection

Test hole data either during construction or during pre-construction activities are subject to the following data collection protocols:

1. All test hole data shall meet the positional accuracy requirements listed in Section 1.4, Positional Accuracy Specification, unless otherwise directed by CDOT. Capture the surface elevation and Meta data for the test hole utilizing the Feature Code 5950 as shown in the screen capture example to the right.

During test hole data collection, it may be advantageous to locate positions identifiable features, such as measuring the depth from existing ground surface or depth of pavement. All such relative positioning measurements shall be reduced to actual absolute coordinate positions by utilizing CDOT's mobile application. All positions shall be based on coordinate standards identified in Section 1.3 (Positions and Coordinate Systems) including Geoid derived elevations. All test hole

observations captured under feature code 5950 shall include the following information:

- a. Test hole number
- b. Permit Number
- c. Utility Owner
- d. Utility Depth
- e. Size of Utility
- f. Material Type
- g. Depth measure to
- h. Depth of pavement
- i. Sub-grade material
- j. Miscellaneous notes

Prod7\CDOT New

New Place Mark Feature Lock

Component: 5950 - GEOLOGY Test hole

Code: 5950

Test hole No:

Permit No:

Utility Owner:

Utility depth:

Utility Size: 1

Material Type:

Depth measured to: Top center of conduit

Depth of Asphalt :

sub grade material:

Misc Notes:

OK Cancel



Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2. All test holes are required to be documented with a photo during direct (**Figure 1 below**) and indirect observations (**Figure 2 below**).

The screenshot shows a mobile application interface for 'Prod7\CDOT'. At the top right is a 'New' button. A 'New Place Mark' dialog box is open, containing the following fields:

- Component:** A dropdown menu with '17 - Photo Test Hole' selected.
- Code:** A dropdown menu with '17' selected.
- Test hole No:** An empty text input field.

At the bottom of the dialog are 'OK' and 'Cancel' buttons. Below the dialog is a satellite map view showing a residential area with a river. A semi-transparent grey box at the bottom of the map contains the text 'Select larger area.'.

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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.1 Direct Observations (Figure 1)

Test hole photo documentation example: Direct observation of the top of conduit.



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Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.2 Indirect Observation (Figure 2)

Document test hole observations and include surface makings as shown in the example below:



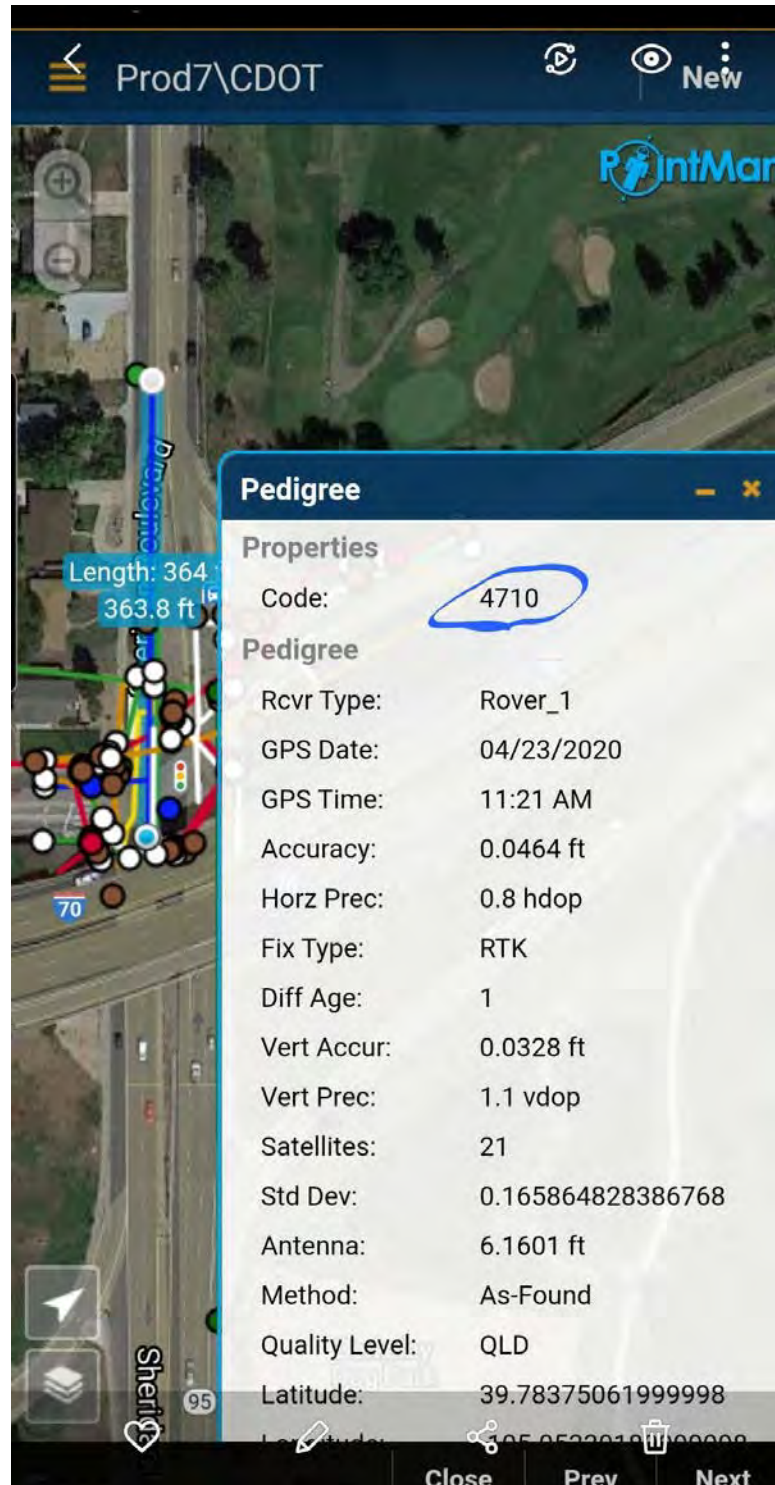
Version 6 – 10/5/2021



Special Provisions - Section 3.3.4.6.2 and 3.3.4.3

2.3 Existing Utility Data collection feature codes

Existing Utility data shall utilize the codes found in Table 2 and shall comply with Sections 1.3 and 1.4. The existing Water Line below is an example utilizing Feature Code 4710:



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