January 13, 2026 **ADDENDUM #1**

For The Board of Education
Iron County School District
2077 W Royal Hunte Dr
Cedar City, Utah 84720

THE ITEMS LISTED IN THIS **ADDENDUM #1** WILL BECOME PART OF THE GENERAL CONTRACT AND WILL BE INCLUDED IN THE APPROPRIATE DRAWING OR SPECIFICATIONS SECTION AS NOTED UNDER EACH OF THE FOLLOWING ITEMS:

INDEX

SPECIFICATIONS

DIVISION 2 – EXISTING CONDITIONS – SECTION 02 3200 "GEOTECHNICAL INVESTIGATION"

1. Replace specification section with attached.

DRAWINGS

SHEET T101 – COVER SHEET, LEGENDS, INDEX TO DRAWINGS

1. Add Civil sheets to master index to drawings.

END OF ADDENDUM #1

SECTION 02 3200
GEOTECHNICAL INVESTIGATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 - General Requirements Specification Sections, apply to the Work of this Section.

B. Geotechnical Investigation
   1. The Contractor shall examine the attached Geotechnical Investigation accompanying addenda thereto, if any. This investigation is bound in this Specification for reference and follows as part of this Section 02 3200 - Geotechnical Investigation. The Contractor shall become fully aware of the natural conditions that exist and are noted in this investigation.
   2. The Contractor shall be aware that due to the nature of the existing subsoil, special precautions are noted and should be observed.

C. Related Work
   1. Additional specifications and requirements are listed in Sections 02 3200 - Geotechnical Investigation, 31 2210 - Building Excavation and Backfill, and 31 2220 - Site Excavation and Backfill and in some cases require a greater standard or additional parameters than are listed in the Geotechnical Investigation Report. In all cases the better quality or greater quantity of work shall apply.

1.02 GENERAL SITE INFORMATION

A. The Contractor shall examine the site personally to ascertain the state thereof and to understand the complexities of the Work. The Contractor shall compare the site with the drawings and the Geotechnical Investigation, and become familiar with the conditions of the premises, the actual elevations, existing obstructions, areas of work and other conditions that would affect the completion of the Work.

B. The Contractor shall observe soil conditions throughout the duration of the site work operations and shall notify the Architect and Geotechnical Engineer of record, of any deviation in actual soil conditions from those expected based on the Geotechnical Investigation bound herein.

C. Excavation shall include, without classifications, the removal of all natural soils, previously placed fill soils construction debris, collapsible soils and excessively soft or disturbed soils encountered, that would interfere with the proper execution and completion of the work. It is anticipated that collapsible soil and previously placed fill removal and replacement will be expected during excavation of onsite underground utilities, asphaltic pavement, site excavation and mass building excavation.
   1. Requirements of this section apply to all excavation work specified in the following Sections:
      a. Section 31 2210 - Building Excavation and Backfill
      b. Section 31 2220 - Site Excavation and Backfill
      c. Section 33 4000 - Storm Drain System
      d. Section 33 3000 - Sanitary Sewer System
      e. Section 33 1000 - Water System

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 02 3200

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WATSON
ENGINEERING COMPANY, INC.

October 31, 2025

Hunter Shaheen
Iron County School District
2077 W Royal Hunt Drive
Cedar City, UT 84720

Subject: Geotechnical Investigation – ICSD Bus Garage
Parcel #B-1531-0000-0000
Cedar City, UT
Project Number: 25-7745

Dear Hunter,

Watson Engineering Company, Inc. (Watson) has completed the geotechnical investigation for the above referenced project. Enclosed you will find the geotechnical report including the results of our field and laboratory investigation, engineering analysis, and recommendations for this property. The following table presents a summary of our findings.

Parameter	Result
Liquefaction Hazard	None
Landslide Hazard	The site is not located in a landslide hazard area
Over-excavation Requirement	Over-excavate 36 inches below all footings, depending on the selected foundation option; 24 inches below pavement, and 18 inches below slabs.
Expansive Soils	None
Soil Salt Solubility	Negligible
Concrete Placement	Do not place concrete in freezing weather and blanket all concrete in cold weather
Compaction Required	95% Relative compaction for all granular materials; 90% for recompacted native or other fine grained materials.
Final Grade Required	5% (6 inches in 10 feet)
Structural Fill	Onsite native soil is useable as structural fill

As always, if you have any questions or concerns regarding our testing, results, or recommendations please feel free to contact us.

472 N. 2150 W. Suite 7 | Cedar City, Utah 84721
Office: 435.586.3004 Fax: 435.586.7480 Web: www.wecinc.com

TABLE OF CONTENTS

1 INTRODUCTION

1.1 General Project Information

This report provides our findings as well as our analysis and recommendations with regards to the proposed bus garage and parking facility to be constructed on a vacant lot located on the southwest corner of the intersection of 3000 North and Northfield Road (400 West) in Cedar City, Utah. At the time of the site investigation, the proposed building location was in the northwest corner of the site and test pits were placed at the northwest and southeast corners of the building footprint. Since the site investigation, the building location has moved to the current location reflected on the Test Location Plan. It is understood that buildings will consist of slab-on-grade construction with steel or masonry structures. Foundation loads are expected to be light to moderate and no special considerations regarding settlement tolerances are needed. This report is prepared assuming that the structure will be designed in accordance with the 2021 International Building Code (IBC).

1.2 Site Description

The lot is bounded on the North by 3000 North, on the East by Northfield Road (400 West), by the Iron County School District Distribution Warehouse property on the South and by agricultural land to the West. At the time of our investigation the property was agricultural land. There were no visual indications of former structures or mass fill onsite.

1.3 Geologic Conditions

Liquefaction may occur when water-saturated sandy soils are subjected to earthquake ground shaking. When soil liquefies, it loses strength and behaves as a viscous liquid (like quicksand) rather than as a solid. This can cause buildings to sink into the ground or tilt, empty buried tanks to rise to the ground surface, slope failures, nearly level ground to shift laterally tens of feet (lateral spreading), surface subsidence, ground cracking, and sand blows. **Liquefaction is not a concern due to groundwater levels being more than fifty feet (50') below the surface.**

Landslides are common natural hazards in Utah. They often strike without warning and can be destructive and costly. Common types of landslides in Utah are debris flows, slides, and rock falls. Many landslides are associated with rising ground-water levels due to rainfall, snowmelt, and landscape irrigation. Therefore, landslides in Utah typically move during the months of March, April, and May, although debris flows associated with intense thunderstorm rainfall are common in July. Since the site lies in the broad plane of the Cedar Valley floor, **this project site does NOT appear to be located atop a Landslide, Debris Flow, or Rockfall hazard.**

1.4 Seismic Conditions

From the available maps and USGS interactive GIS database, the site appears to be located approximately three (3) miles of the Cross Hollow Hills faults and the Hurricane fault zone, both to the south, and within three (3) miles of the Cedar City – Parowan Monocline to the east. Foundations should be designed by a qualified, registered structural engineer. Based on local geology and experience in the area, a site classification of "D" should be used for the design of structures.

The seismic design parameters may be found in the following table. These values were calculated using ASCE 7-16.

Table 1.4 Spectral Response Design Parameters

S_S	0.748 g
S_1	0.240 g
S_{MS}	0.899 g
S_{M1}	N/A
S_{DS}	0.599 g
S_{D1}	N/A

1.5 Subsoil Conditions

Site soil conditions were investigated by excavating six test pits to depths of approximately ten feet (10') below the building and five feet (5') below pavement. Test pits were located at the northwest and southeast corners of the building footprint, as proposed at the time of the site investigation, and uniformly throughout the parking area.

The subsoils at the site consist of sandy low plastic clay materials. Two test pits were excavated to a depth of ten feet (10') below the existing grade at the northwest and southeast corners of the proposed building location, TP-1 and TP-2, respectively. The soils encountered were low plastic clays (CL); in TP-1 a seam of loose fine sand was encountered at a depth of nine feet (9'). Groundwater was not encountered.

Under the proposed parking areas, four additional test pits were excavated to depths of five feet (5') below the existing grade. The soils encountered in these areas were also sandy clays that varied in density and stiffness from medium dense to very stiff. The soil was visually classified as 'dry' in all locations. Groundwater was not encountered.

Bulk soil samples were collected throughout the expected depths of earthwork impact in four of the test pits (TP-1, TP-2, TP-3 and TP-6). Atterberg Limit tests indicate the soil has a liquid limit of 22 to 29 and the plasticity indices ranged from 12 to 14. Modified proctor tests (ASTM D1557) run on soil taken from TP-1 and TP-2 resulted in a maximum

dry density of 118.2 pcf at a moisture content of 12.2 percent and 123.1 pcf as a moisture content of 10.2 percent respectively.

Due to the uniformity of subsurface soil observed within the site, additional site investigation work to define conditions under the new building location is not considered necessary at this time; however, if during excavation work or construction, any condition outside of the findings stated herein is observed, Watson Engineering must be consulted and the impact of the observations determined.

2 ENGINEERING ANALYSIS AND RECOMMENDATIONS

2.1 Analysis

The soil is sufficient to support the proposed structure on shallow spread footings with a slab on grade subject to remedial earthwork.

Field and laboratory testing indicates that the native material is of low density and will likely collapse if subjected to moisture infiltration while supporting structural or pavement loads. It is recommended that the spread footings be over-excavated and recompacted to increase the density and strength of the bearing soils, and to provide a consistent bearing capacity across the entire foundation. Depending on access and the size of the structure and equipment, it may be easier to over-excavate the entire footprint of the structure. Structural fill shall extend at least three feet (3') below the bottom of footing elevation (both exterior and interior footings), or three feet (3') below existing grades, whichever is deeper. Structural fill should extend horizontally at least five feet (5') beyond the edge of the foundations.

The native fine grained soils are capable of significant amounts of hydro-collapse. It will be imperative that the site be graded to remove water away from the structures and pavement. If onsite storm water management is used, the infiltration area should be far enough away from structures and pavement so as to reduce the likelihood of increasing the moisture content of the subgrade soils. Pavement should bear on at least 24 inches of re-compacted native material, 24 inches of non-collapsible import fill, or a combination of both. Collapse requires both an increase in moisture and load; 24 inches of over-excavated and recompacted soil will provide sufficient load reduction in the native soils so as to reduce collapse potential under the pavement to reasonable levels, with expected moisture contents in the soil. While underground storm water pipes will likely be necessary, underground storage in a tank should be avoided in order to reduce the likelihood that large amounts of water leak into the adjacent soils.

Groundwater was not encountered during the investigation. It is expected that excavation operations will be able to utilize standard equipment, however the excavation contractor should make his own conclusions.

The density of native soil in this area is low and shrinkage from 25% to 35% should be expected.

2.2 Site Preparation

The existing vegetation should be cleared along with large root systems. Any debris and loose soils should be removed in their entirety. Footing excavations should be deepened to account for the over-excavation requirement.

Precautions should be taken during and after construction to eliminate saturation of foundation soils. All drainage and grading next to the structure foundation shall be constructed in accordance with the requirements of section 1804.3 of the 2021 IBC. Over-wetting the soils prior to or during construction may result in softening and pumping causing equipment mobility problems and difficulty in achieving compaction. Saturation of the soils after construction may cause distress to the foundations and flatwork. Positive drainage should be established away from the exterior walls of the structures. Positive grade is defined by having a minimum drainage slope in landscaped areas of six inches (6″) for a minimum distance of ten feet (10′) away from the foundation of the structure (five percent (5%)) and in hard surface pavement areas, two inches (2″) for a minimum distance of eight feet (8′) away from the structure (two percent (2%)). **This positive grade shall be maintained throughout the life of the structure to minimize the amount of moisture infiltrating the soils against the concrete foundation wall, and that a minimum of six inches (6″) of separation from the top of the concrete foundation wall to any landscaping be maintained.** Watering adjacent to the structure should be eliminated and properly maintained to prevent over-watering. Roof runoff and other sources of moisture should not be allowed to infiltrate the soils in the vicinity of, or upslope from the structure. Special care should be taken to properly channel roof runoff and other sources of moisture. This may require other solutions than just site grading.

Prior to placing fills, the excavation bottoms should be scarified to a depth of eight inches (8″), moisture conditioned to within two percent (2%) of optimum, and recompacted to at least 90 percent of the maximum dry density as determined by ASTM D1557 (Modified Proctor). Backfill should be placed as specified in the Fill and Backfill section (2.5) of this report. Once excavation is complete and prior to backfilling, it is recommended that a representative of Watson visit the site and confirm that the subgrade meets the requirements set forth herein.

Pavement areas should be compacted in a similar manner. Any import fill should comply with the requirements as specified in the Fill and Backfill section (2.5) of this report. Any offsite paving should meet city minimum pavement thickness and aggregate base thickness. The excavation bottom should be scarified, moisture conditioned, and re-compacted as recommended above.

2.3 Foundations

It is recommended that foundations bear on structural fill. The foundation should bear at least 10 inches below the bottom of slab, and at least 30 inches below grade for frost protection. If site preparation is carried out as specified herein **an allowable bearing capacity of 1,500 psf** may be used for design. This bearing capacity may be increased 1/3 for wind, seismic, and other transient loads of a short duration. Footings should be a minimum of 20 inches wide. In order to limit settlement, **isolated and continuous footings should be limited in width to six feet (6'), and three feet (3'), respectively**.

It is recommended that a representative of Watson observe excavations, once completed, to ensure the presence of adequate bearing stratum. Re-compacted materials should be tested to ensure that they meet the requirements herein. Total settlement is estimated to be on the order of ½ to 1 inch with differential settlement less than half of the total settlement for shallow spread footings.

These bearing capacities rely on the dry strength of the native soils. Increased moisture could cause the foundations to settle. It is therefore imperative that proper grades be established and runoff controlled to limit moisture infiltration within ten feet (10') of the structure. The roof drains should discharge at least ten feet (10') away from the structure. Irrigation should be kept at a minimum within ten feet (10') of the structure in order to prevent additional moisture increases to the supporting soils.

2.4 Lateral Pressures

The following lateral pressures may be utilized for the proposed construction:

- Active Pressures (Unrestrained walls) 35 psf/ft
- At-Rest Pressures (Restrained walls) 60 psf/ft
- Passive Pressures
  - Continuous Footings 300 psf/ft
  - Spread Footings or Drilled Piers 350 psf/ft
- Coefficient of Friction
  - with passive pressure 0.35
  - without passive pressure 0.45

All backfill must be compacted to at least 90 percent (ASTM D1557) to mobilize these passive pressures at low strain. **Expansive soil should not be used as retaining wall or basement wall backfill**, except as a surface seal to limit moisture infiltration. The expansive pressures could greatly increase the active pressures.

2.5 Fill and Backfill

Native material is suitable for use as general grading and structural fill.

All fill placed for the support of **footings** shall consist of **at least 36 inches** of structural fill, depending on the foundation option selected. Fill placed for **slabs-on-grade and exterior concrete flatwork** should consist of at least **18 inches** of structural fill. Pavement (concrete, asphalt, gravel roads, drives, and parking areas) should consist of **24 inches** of structural fill. Structural fill shall consist of native material or approved imported low plasticity soils (having a remolded swell potential less than 4% under a 60 psf surcharge); Type I (pit run) or Type II (road base) aggregate material may also be used. Structural fill should have a solubility of less than 3%, be free of vegetation and debris, and contain no inert materials larger than four inches (4") in nominal size, and have at least 20% passing the #200 sieve.

Structural fill should be placed in maximum eight inch (8") loose lifts and be compacted on a horizontal plane, unless otherwise approved by the Geotechnical Engineer. Structural fill shall be compacted to at least 95 percent of the maximum dry density for granular material and 90% for the native fine-grained material, as determined by ASTM D1557. The moisture content should be within ±2% of optimum for granular soils and 0% to 2% above optimum for fine grained soils, however this is only a guide to assist earth work contractors. In areas where soil pumping is observed during compaction, that soil must be excavated and removed from the excavation. Any imported fill materials should be approved prior to importing. Prior to placing any fill, the excavations should be observed by the Geotechnical Engineer to confirm that unsuitable materials have been removed and that it has been compacted to a suitable density. During earthwork placement the soils shall be inspected according to the requirements contained in IBC 1705.6.

2.6 Slab on Grade

All exterior slabs adjacent to the structure should be tied into the structural foundation with #4 rebar extending from the foundation into the exterior slab at least twelve inches (12"). Stem walls should be tied into interior slabs on grade with #4 rebar placed so that it extends fully into the stem wall and a minimum of approximately 40 bar diameters into the slab. Type 1L concrete should be used for all footings or wherever concrete will come into direct contact with the onsite soils.

Concrete slabs-on-grade and exterior concrete flatwork shall be supported by a four inch (4") layer of compacted gravel overlying a zone of properly placed and compacted structural fill. The layer of compacted gravel shall consist of Type II Aggregate Base or Type I pit-run gravel.

All concrete slabs should be designed to minimize cracking as a result of shrinkage. Additionally, all concrete slabs should be reinforced and poured with Type 1L concrete. The steel reinforcement in floor slabs should be doweled into the foundation to aid in resistance of the contraction/expansion potential. We recommend that concrete floor slabs be reinforced as recommended by the Structural Engineer. Reinforcement should

be installed at mid-height in the slab unless directed otherwise by the Structural Engineer.

Special precautions must be taken during the placement and curing of all concrete slabs. Excessive slump (greater than 4") of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking, or curling in the slabs. We recommend that all concrete placement and curing operations be performed in accordance with the American Concrete Institute (ACI) Manual R318-19. In addition, we recommend concrete placement be in accordance with ACI standard 306.1: Standard Specification for Cold Weather Concreting; ACI standard 306R: Cold Weather Concreting; ACI standard 305.1: Specification for Hot Weather Concreting; and ACI standard 305R: Hot Weather Concreting.

2.7 Pavement Recommendations

Pavement sections should be chosen by the owner based on expected traffic loads. The Following table presents various pavement thickness options specific to the site. It is expected that some street improvements will be required on Northfield Road and 3000 N. Street. Both streets are Cedar City traffic collectors. Pavement design options meeting city requirements are included in the table. Pavement is designed based on the number of times an equivalent 18-kip single axle load (ESAL) truck drives along a roadway. A delivery truck and a garbage truck are examples of a 1 ESAL load. It takes approximately 1,200 passenger cars to equal 1 ESAL. For a single school bus, loads generally range from 0.6 ESAL to 1.5 ESAL, depending upon the bus make and model. With 240 buses entering and/or leaving the site four times a day (two round trips), the main travel ways will be subjected to approximately 1000 ESAL per day and 67 ESAL per day on bus parking isles. This loading is much higher than what city streets are subjected to. School buses also tend to park in the same location within the provided parking stalls which results in bus wheels applying static pavement loads at the same location every time they park and the pavement under the wheels settling disproportionately to the surrounding pavement. The table below provides the expected Daily ESAL capacity for various asphalt and concrete pavement designs. These are based on a 20 year lifespan.

Location	Daily ESALs	Asphalt (in)	PCC (in)	Aggregate Base (in)*	Structural Fill (in)	Note
On-site (vehicle)	2	2.5		6.0/6.0	24	1
On-site (truck)	8	3.0		6.0/8.0	24	2
City Major Collector	8	3.0		6.0/8.0	24	3
City Minor Collector	2	2.5		6.0/6.0	24	4
On-site PCC in Drives	18	-	8.0	6.0/6.0	24	5
On-site PCC in Walks			4.0	6.0/0.0	18	
On-site Bus Travel	1000	4.0		8.0/10.0	24	6

On-site Bus Parking	67	4.0		8.0/6.0	24	6

Notes: *Aggregate Base is Type II road base over Type I pit run aggregate.

1. This section is recommended for on-site parking and drive areas subject only to passenger vehicle traffic.
2. This section is recommended for on-site truck traffic and parking areas.
3. The Cedar City minimum pavement section for major collector streets.
4. The Cedar City minimum pavement section for local streets.
5. Concrete subjected to traffic loads should be steel reinforced.
6. These sections are recommended for bus traffic/parking areas.

All asphalt pavements crack and require a maintenance program where the asphalt surface and any cracks are sealed periodically (a maximum cycle period of five years is recommended). The thicker asphalt sections will have more durability and require less maintenance over the life of the pavement than thinner sections. Under all pavement carrying traffic, the subgrade should consist of at least twenty-four inches (24″) of structural fill. Where any fill is to be placed, the bottom of the excavation should be scarified, moisture conditioned, and re-compacted to at least 90 percent of the maximum dry density as determined by ASTM D1557. The aggregate base under pavement shall consist of Type II Aggregate Base (road base) and Type I pit-run gravel, both compacted to at least 95% of the maximum dry density. Pavements and materials placed within streets must meet the requirements of the Cedar City Engineering Standards, Section 4.3.

For a longer service life and reduced pavement maintenance, it is recommended that asphalt pavement within the site be more substantial than the Cedar City Road standards. The onsite driveways and parking access isles will be subjected to significantly greater loads than Cedar City streets as almost all the traffic will be buses. For the driveways and drive isles, a pavement section consisting of four inches (4″) of asphalt supported by eight inches (8″) of Type II road base and ten inches (10″) of Type I pit run aggregate over twenty four inches (24″) of over-excavated and recompacted subgrade soil is recommended. For bus parking stall pavement, the Type I aggregate subbase layer can be reduced from ten inches (10″) to six inches (6″).

Onsite concrete (PCC) placed for trash enclosures, sidewalks, and other non-drive/parking areas should consist of a minimum of four inches (4″) of concrete placed on at least four inches (4″) of aggregate base. Concrete pavement should consist of at least five inches (8″) of concrete supported on twelve inches (12″) of aggregate base (6.0″ Type II over 6.0″ Type I).

3 GENERAL DISCUSSION

This report has been prepared for the exclusive use of the addressee and their authorized agents. This report is not intended for use by others and the information

contained herein is not applicable to other sites not named herein. This report is valid only until the governing jurisdiction recognizes a new building code. If this occurs prior to construction, then Watson should be consulted for updated recommendations.

Watson structures our services to meet the specific needs of our clientele; each study and prepared report is unique and prepared solely for the specific client project site(s). No other party may rely on our products or services unless Watson agrees, in writing, to allow such use. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and generally accepted geotechnical practices in the area the work was performed at the time this report was prepared.

You may NOT rely on this report if such report was:

- Not prepared for you
- Not prepared for your project
- Not prepared for the specific site explored
- Completed before important project changes were made
- Function of proposed structure has changed
- Evaluation, configuration, location, orientation or weight of the proposed structure has changed
- Composition of the design team has changed
- Project ownership has changed
- Not paid for in full

No warranty is implied or can be expected with this report. Our interpretations of subsurface conditions are based on a limited number of field and subsurface observations. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Watson's professional judgment was applied to a limited number of field observations and laboratory analyses. The recommendations put forward in this report result from a very limited number of observations; such limited observations were constrained by budget. Watson's conclusions and interpretations should not be construed as a warranty of the subsurface conditions. A greater degree of accuracy for those observations, interpretations, and conclusions offered may be increased by increasing the number of observation points for comparative analysis.

Hazardous materials or environmental contamination discovered at the site during or as a result of field observations or subsurface exploration do not fall within the scope of services for this investigation. Watson Engineering Company, Inc., cannot, and will not, be held liable for any such discovery or the spoils left by such discovery. Such hazardous materials are and remain the liability of the property owner.

Do not over-rely on the preliminary construction recommendations included herein; these recommendations are not final as they were formed, as explained above, from a limited number of observation points and a limited number of laboratory tests. Watson's recommendations may only be 'finalized' by our personnel directly observing actual subsurface conditions revealed during construction. Watson cannot and will not assume responsibility or liability for the recommendations contained herein if Watson does not perform construction observation and testing services.

The recommendations contained in this report are based on the field explorations, laboratory tests, and our understanding of the proposed construction. The subsurface data used in the preparation of this report were obtained from the explorations made for this investigation. It is possible that variations in the soil and groundwater conditions could exist between the points explored. The nature and extent of variations may not be evident until construction occurs. If any conditions are encountered at this site which are different from those described in this report, our firm should be immediately notified so that we may make any necessary revisions to recommendations contained in this report. In addition, if the scope of the proposed construction changes from that described in this report, our firm should also be notified.

It is the Client's responsibility to see that all parties to the project, including the Designer, Contractor, Subcontractors, etc., are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the Contractor's option and risk.

This report is valid for 18 months from the below signed date, or the next code change, whichever comes first. If construction has not commenced prior to expiration of this report, Watson should be contacted to review and provide an update addendum to this report.

4 ADDITIONAL SERVICES

The recommendations made in this report are based on the assumption that an adequate program of tests and observations will be made during the construction to verify compliance with these recommendations. These tests and observations should include, but not necessarily be limited to, the following:

- ✓ Observations and testing during site preparation, earthwork and structural fill placement.
- ✓ Observation of footing excavations.
- ✓ Consultation as may be required during construction.

We also recommend that project plans and specifications be reviewed by us to verify compatibility with our conclusions and recommendations. Additional information concerning the scope and cost of these services can be obtained from our office.

Respectfully Submitted,

Blair McDonald, P.E.
Geotechnical Engineer

Tim G. Watson, P.E.
President/Principal

APPENDIX

TEST LOCATION PLAN

TEST PIT LOGS

SUMMARY OF LABORATORY RESULTS

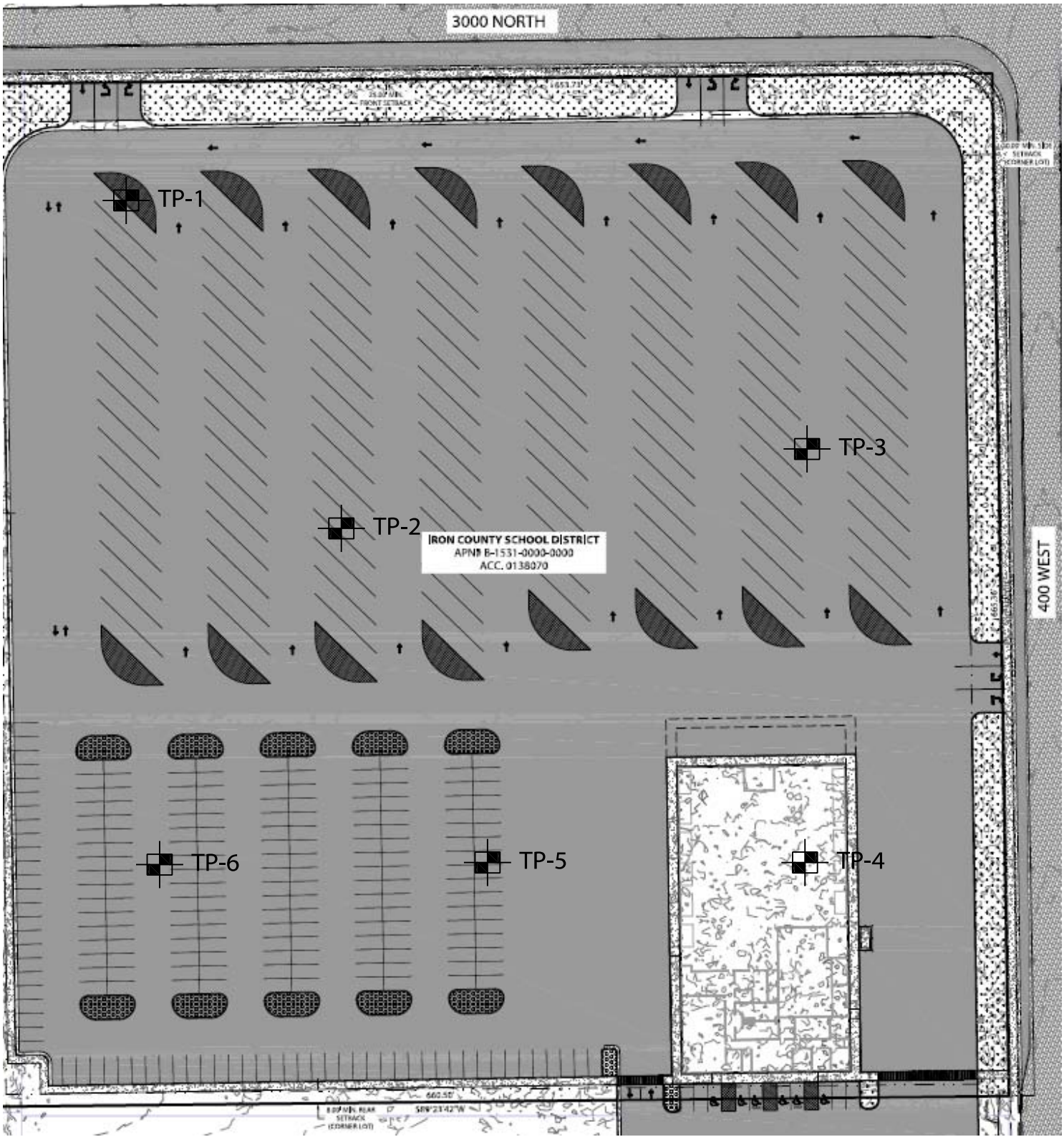
MOISTURE DENSITY RELATIONS

GRAIN SIZE DISTIBUTION

CONSOLIDATION TEST (RESPONSE TO WETTING)

KEY TO SYMBOLS

SOIL CLASSIFICATION CHART



- APPROXIMATE TEST PIT LOCATION

WATSON ENGINEERING COMPANY, INC.
472 N 2150 W, Suite 7
Cedar City, UT 84721
Tel. (435) 586-3004
www.wecinc.com

TEST LOCATION PLAN

ICSD

BUS GARAGE
3000 N 400 WEST
CEDAR CITY, UT

DRAWN BY: B. MCDONALD
CHECKED BY: T. WATSON
DATE: 10/31/2025
WATSON PROJECT No.: 25-7745
SCALE: N.T.S.
FILE: TLP.DWG
sheet TLP
Sheet 1 of 1

Watson Engineering Company Inc.
472 N. 2150 W. Ste 7
Cedar City, UT 84721
435-586-3004

TEST PIT LOG: TP-1

CLIENT: Iron County School District
PROJECT: ICSD Bus Garage
PROJECT NUMBER: 25-7745
ADDRESS: Cedar City, Cedar City, Utah
DATE EXCAVATED 7/16/25 **LOGGED BY** B. Amos
EXCAVATION CONTRACTOR Mike's Dirt Works
EXCAVATION METHOD Mini-Ex
EXCAVATION EQUIPMENT
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE (%)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0.0		Medium Dense Brown SILTY CLAYEY SAND (CL-Dry)	GB BS-1					
2.5								
5.0								
7.5								
		Loose Brown FINE SAND (SM)						
10.0								

BOTTOM OF TEST PIT AT 10.0 FEET.

Watson Engineering Company Inc.
472 N. 2150 W. Ste 7
Cedar City, UT 84721
435-586-3004

TEST PIT LOG: TP-2

CLIENT: Iron County School District
PROJECT: ICSD Bus Garage
PROJECT NUMBER: 25-7745
ADDRESS: Cedar City, Cedar City, Utah
DATE EXCAVATED 7/16/25 **LOGGED BY** B. Amos
EXCAVATION CONTRACTOR Mike's Dirt Works
EXCAVATION METHOD Mini-Ex
EXCAVATION EQUIPMENT
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE (%)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0.0		Medium Dense Brown SILTY CLAYEY SAND (CL-Dry)	GB BS-1					
2.5								
5.0								
7.5								
10.0		BOTTOM OF TEST PIT AT 10.0 FEET.						

Watson Engineering Company Inc.
472 N. 2150 W. Ste 7
Cedar City, UT 84721
435-586-3004

TEST PIT LOG: TP-3

CLIENT: Iron County School District
PROJECT: ICSD Bus Garage
PROJECT NUMBER: 25-7745
ADDRESS: Cedar City, Cedar City, Utah
DATE EXCAVATED 7/16/25 **LOGGED BY** B. Amos
EXCAVATION CONTRACTOR Mike's Dirt Works
EXCAVATION METHOD Mini-Ex
EXCAVATION EQUIPMENT
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE (%)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0.0		Stiff Brown SANDY LEAN CLAY (CL-Dry)						
2.5			GB BAG-1					
5.0		BOTTOM OF TEST PIT AT 5.0 FEET.						

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Cedar City, UT 84721
435-586-3004

TEST PIT LOG: TP-4

CLIENT: Iron County School District
PROJECT: ICSD Bus Garage
PROJECT NUMBER: 25-7745
ADDRESS: Cedar City, Cedar City, Utah
DATE EXCAVATED 7/16/25 **LOGGED BY** B. Amos
EXCAVATION CONTRACTOR Mike's Dirt Works
EXCAVATION METHOD Mini-Ex
EXCAVATION EQUIPMENT
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE (%)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0.0		Soft Brown SANDY LEAN CLAY (CL-Dry)						
2.5								
5.0		BOTTOM OF TEST PIT AT 5.0 FEET.						

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Cedar City, UT 84721
435-586-3004

TEST PIT LOG: TP-5

CLIENT: Iron County School District
PROJECT: ICSD Bus Garage
PROJECT NUMBER: 25-7745
ADDRESS: Cedar City, Cedar City, Utah
DATE EXCAVATED 7/16/25 **LOGGED BY** B. Amos
EXCAVATION CONTRACTOR Mike's Dirt Works
EXCAVATION METHOD Mini-Ex
EXCAVATION EQUIPMENT
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE (%)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0.0		Stiff Brown SANDY CLAY (CL-Dry)						
2.5								
5.0								

BOTTOM OF TEST PIT AT 5.0 FEET.

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Cedar City, UT 84721
435-586-3004

TEST PIT LOG: TP-6

CLIENT: Iron County School District
PROJECT: ICSD Bus Garage
PROJECT NUMBER: 25-7745
ADDRESS: Cedar City, Cedar City, Utah
DATE EXCAVATED 7/16/25 **LOGGED BY** B. Amos
EXCAVATION CONTRACTOR Mike's Dirt Works
EXCAVATION METHOD Mini-Ex
EXCAVATION EQUIPMENT
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE (%)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ 20 40 60 80 / PL MC LL 20 40 60 80 / ☐ FINES CONTENT (%) ☐ 20 40 60 80
0.0		Medium Dense Brown CLAYEY SAND (SC-Dry)						
2.5			GB BAG-2					
5.0								

BOTTOM OF TEST PIT AT 5.0 FEET.

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SUMMARY OF LABORATORY RESULTS

CLIENT: Iron County School District **PROJECT:** ICSD Bus Garage

PROJECT NUMBER: 25-7745 **ADDRESS:** Cedar City, Cedar City, Utah

Borehole	Depth Interval (ft)	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Class-ification	Water Content (%)	Dry Density (pcf)	Solubility (%)	Void Ratio
TP-1	0.0-10.0	29	14	15	4.75	84	CL			< 1	
TP-2	0.0-6.0	22	12	10	4.75	71	CL			< 1	
TP-3	0.0-5.0	27	13	14	2.36	77	CL				
TP-6	0.0-5.0	24	14	10	4.75	68	CL				

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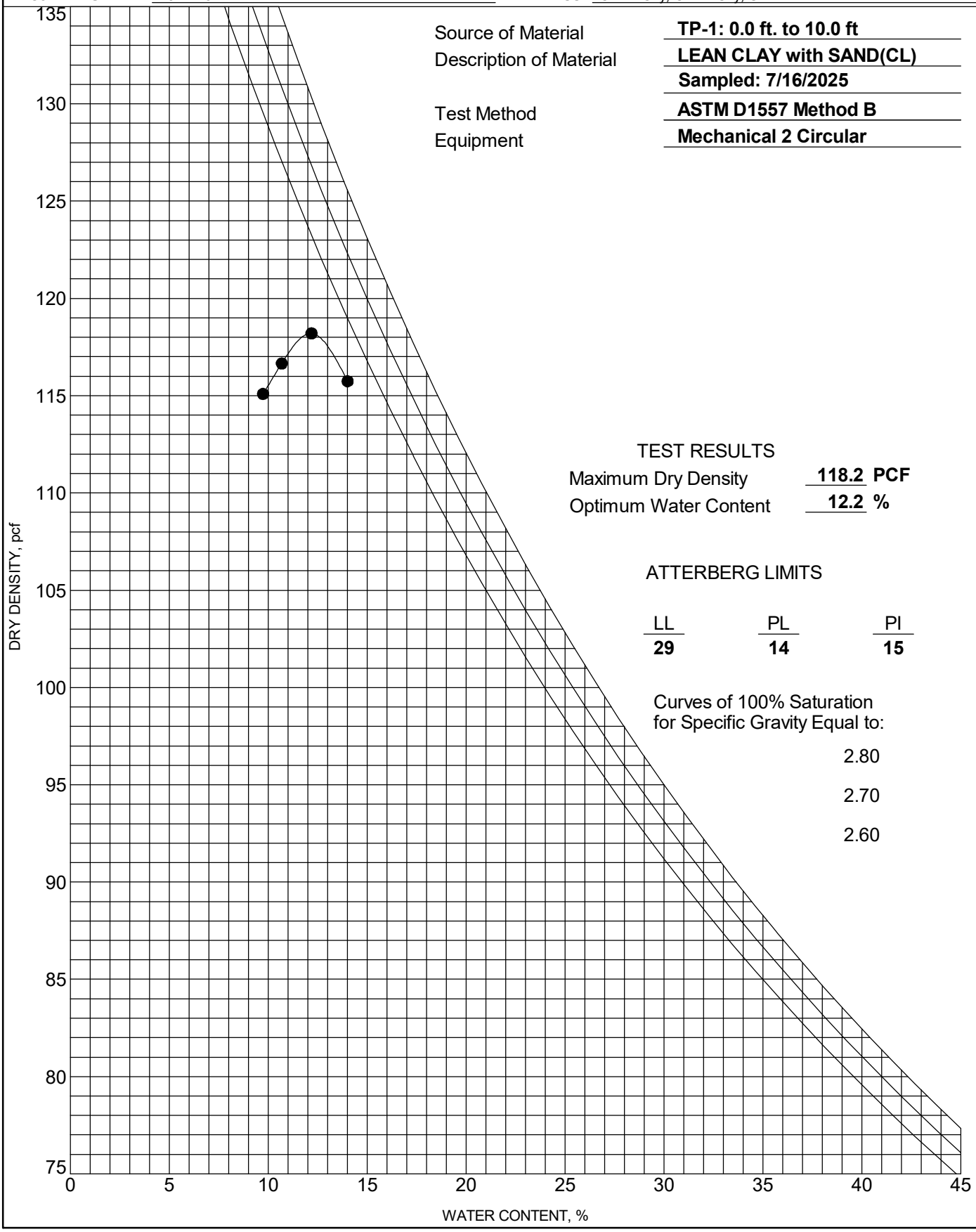
MOISTURE-DENSITY RELATIONSHIP

CLIENT: Iron County School District **PROJECT:** ICSD Bus Garage

PROJECT NUMBER: 25-7745 **ADDRESS:** Cedar City, Cedar City, Utah



Source of Material	**TP-1: 0.0 ft. to 10.0 ft**
Description of Material	**LEAN CLAY with SAND(CL)**
	Sampled: 7/16/2025
Test Method	**ASTM D1557 Method B**
Equipment	**Mechanical 2 Circular**

TEST RESULTS

Maximum Dry Density	**118.2**	**PCF**
Optimum Water Content	**12.2**	**%**

ATTERBERG LIMITS

LL	PL	PI
29	**14**	**15**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION - 16172 - 9/25/25 12:16

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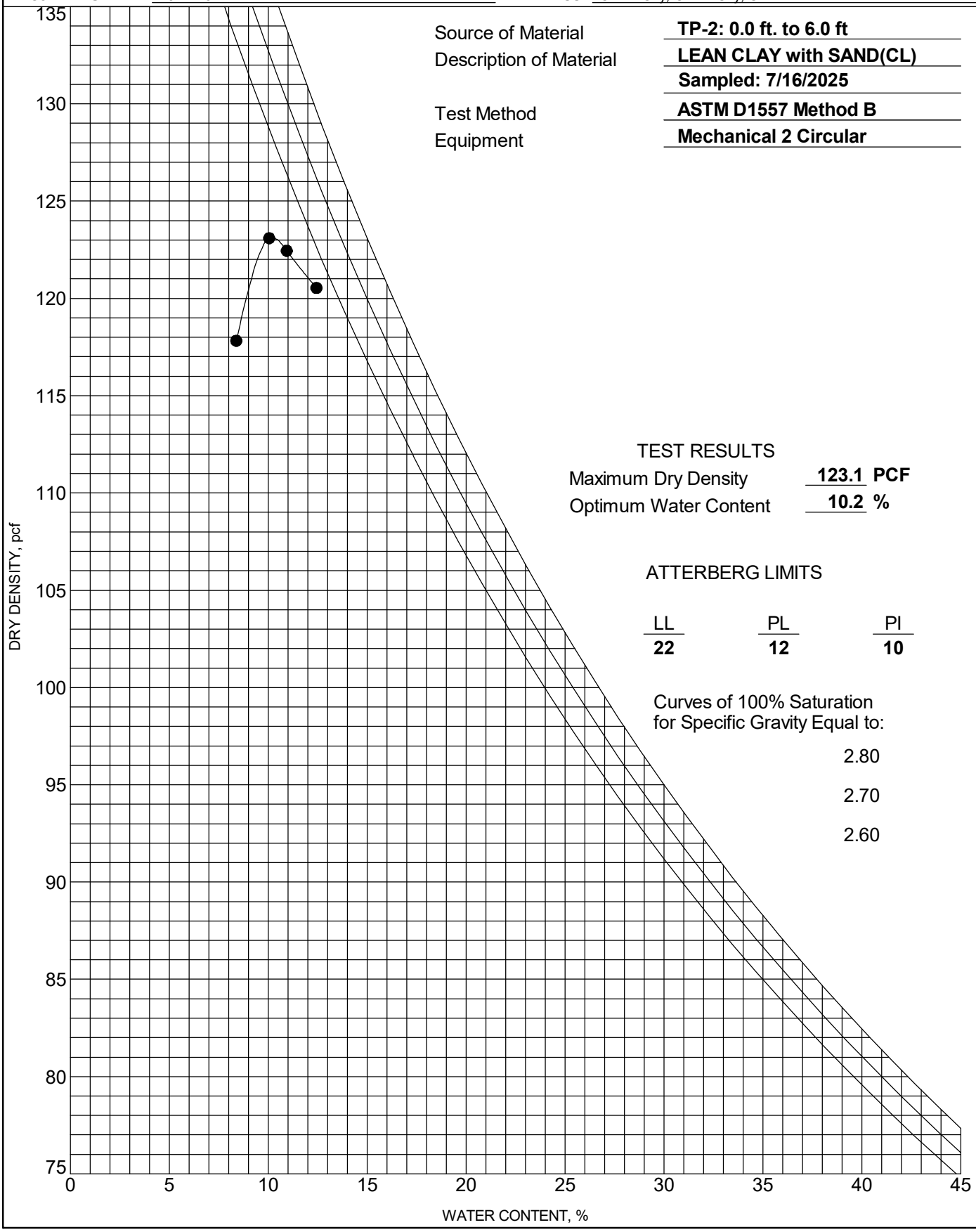
MOISTURE-DENSITY RELATIONSHIP

CLIENT: Iron County School District **PROJECT:** ICSD Bus Garage

PROJECT NUMBER: 25-7745 **ADDRESS:** Cedar City, Cedar City, Utah



Source of Material	**TP-2: 0.0 ft. to 6.0 ft**
Description of Material	**LEAN CLAY with SAND(CL)**
	Sampled: 7/16/2025
Test Method	**ASTM D1557 Method B**
Equipment	**Mechanical 2 Circular**

TEST RESULTS

Maximum Dry Density	**123.1**	**PCF**
Optimum Water Content	**10.2**	**%**

ATTERBERG LIMITS

LL	PL	PI
22	**12**	**10**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

GRAIN SIZE DISTRIBUTION

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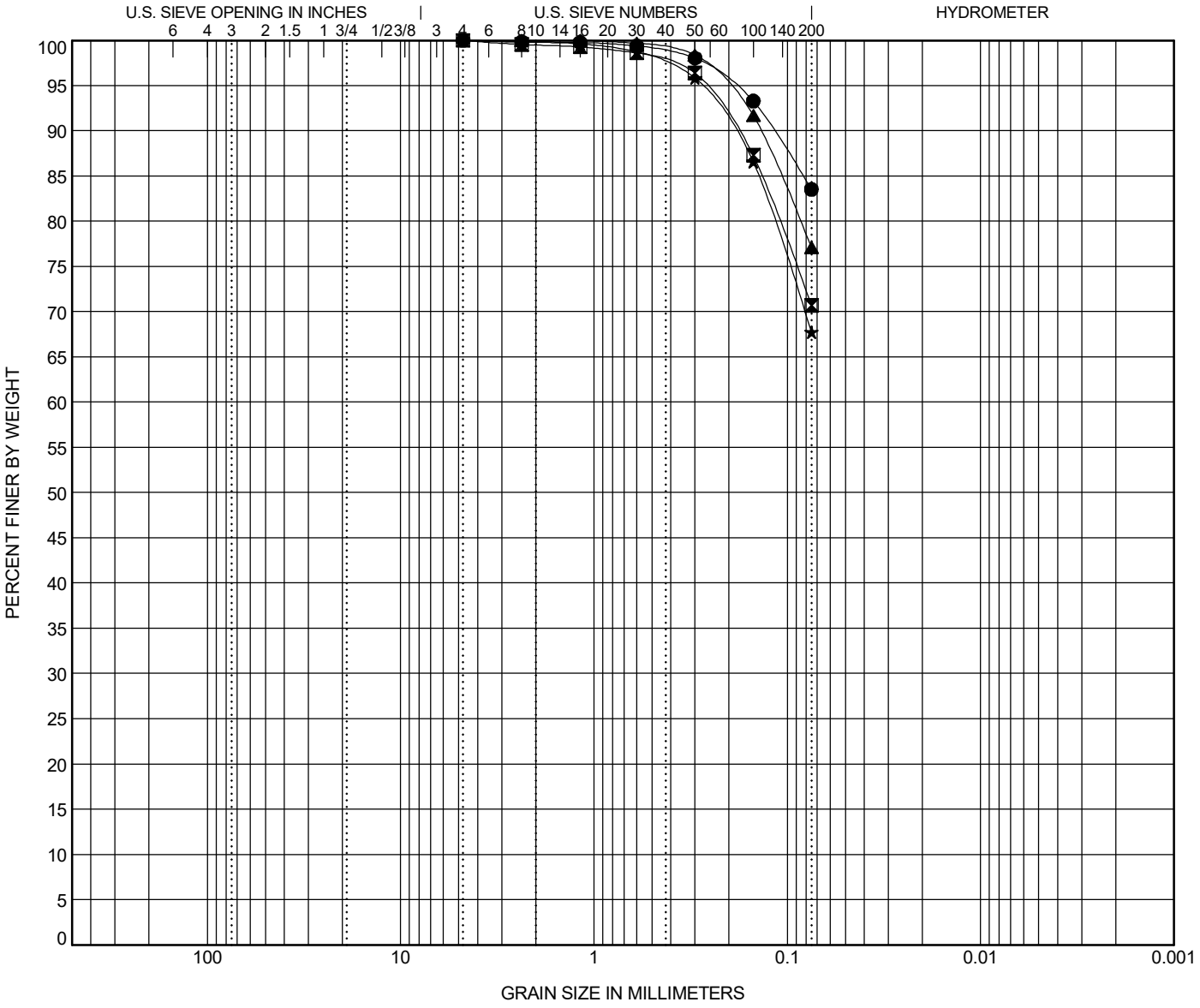
CLIENT: Iron County School District **PROJECT:** ICSD Bus Garage

PROJECT NUMBER: 25-7745 **ADDRESS:** Cedar City, Cedar City, Utah



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**TP-1**	**0.0**	**LEAN CLAY with SAND(CL)**	**29**	**14**	**15**		
⊠	**TP-2**	**0.0**	**LEAN CLAY with SAND(CL)**	**22**	**12**	**10**		
▲	**TP-3**	**0.0**	**LEAN CLAY with SAND(CL)**	**27**	**13**	**14**		
★	**TP-6**	**0.0**	**SANDY LEAN CLAY(CL)**	**24**	**14**	**10**		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**TP-1**	**0.0**	**4.75**				**0.0**	**16.5**	**83.5**	
⊠	**TP-2**	**0.0**	**4.75**				**0.0**	**29.3**	**70.7**	
▲	**TP-3**	**0.0**	**2.36**				**0.0**	**22.9**	**77.1**	
★	**TP-6**	**0.0**	**4.75**				**0.0**	**32.3**	**67.7**	

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435-586-3004

KEY TO SYMBOLS

CLIENT: Iron County School District **PROJECT:** ICSD Bus Garage

PROJECT NUMBER: 25-7745 **ADDRESS:** Cedar City, Cedar City, Utah

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)


CL: USCS Low Plasticity Clay


SC: USCS Clayey Sand


SM: USCS Silty Sand

SAMPLER SYMBOLS


Grab Sample

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)

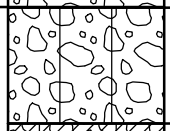
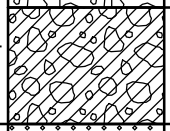
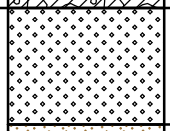
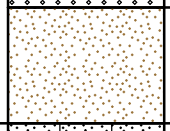
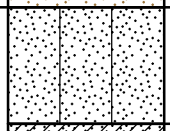
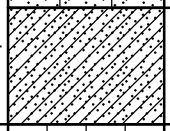
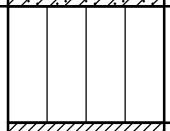
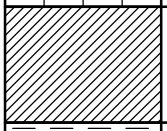
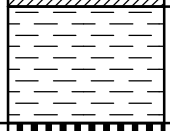
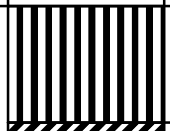
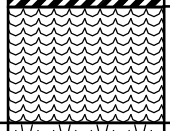
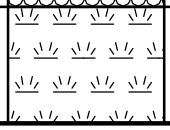
TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION


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

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

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T101 - COVER SHEET, LEGENDS, INDEX TO DRAWINGS

THE NEW

BUS GARAGE

LOCATED IN CEDAR CITY, UTAH
FOR THE BOARD OF EDUCATION
IRON COUNTY SCHOOL DISTRICT

2077 WEST ROYAL HUNTE DRIVE
CEDAR CITY, UTAH 84720

DRAWINGS AND SPECIFICATIONS PREPARED BY

naylor wentworth lund
a r c h i t e c t s

163 WEST 1600 SOUTH, SUITE #1 ST. GEORGE, UTAH 84770 435 656-2883

WATSON ENGINEERING
GEOTECHNICAL ENGINEER
472 NORTH 2150 WEST, SUITE 7
CEDAR CITY, UTAH 84721
(435) 586 - 3004

WATSON ENGINEERING
CIVIL ENGINEER
472 NORTH 2150 WEST, SUITE 7
CEDAR CITY, UTAH 84721
(435) 586 - 3004

BHB CONSULTING ENGINEERS
STRUCTURAL ENGINEERS
2766 SOUTH MAIN STREET
SALT LAKE CITY, UTAH 84115
(801) 355 - 5656

RESOLUT
MECHANICAL ENGINEER
230 NORTH 1680 EAST, BUILDING V
ST. GEORGE, UTAH 84790
(435) 674 - 4800

RESOLUT
ELECTRICAL ENGINEER
230 NORTH 1680 EAST, BUILDING V
ST. GEORGE, UTAH 84790
(435) 674 - 4800

MATERIALS LEGEND

- EARTH
- GRAVEL
- SAND
- COMPACTED STRUCTURAL FILL
- CONCRETE
- FRAME WALL (PLAN VIEW)
- STEEL (LARGE SCALE)
- FINISH WOOD (LARGE SCALE)
- ROUGH WOOD (LARGE SCALE)
- PLYWOOD (LARGE SCALE)
- GLASS (LARGE SCALE)
- BATT INSULATION
- RIGID INSULATION
- GYPSUM BOARD (LARGE SCALE)
- TECTUM (LARGE SCALE)
- CERAMIC TILE (ELEVATION)
- SHEET METAL (ELEVATION)
- STUCCOO / E.I.F.S. (ELEVATION)
- STUCCOO / E.I.F.S. (SECTION)

ABBREVIATIONS

&	and	LAV	Lavatory
@	at	LBL	Label
AB	Anchor Bolt		
ABV	Above	MAX	Maximum
ADJ	Adjustable	MB	Marker Board
AFF	Above Finish Floor	MECH	Mechanical
ALUM	Aluminum	MFR	Manufacturer
APPROX	Approximate	MIN	Minimum
ARCH	Architect(ural)	MO	Masonry Opening
		MTL	Metal
BD	Board	MULL	Mullion
BEL	Below		
BLDG	Building	(N)	New
BM	Beam	NIC	Not In Contract
BSMT	Basement	NO	Number
		NOM	Nominal
CAB	Cabinet	NTS	Not to Scale
CANT	Cantilever		
CG	Corner Guard	OC	On Center
CJ	Construction/Control Joint	OD	Outside Diameter
CMU	Concrete Masonry Unit	OFF	Office
COL	Column	OH	Overhead
CONC	Concrete	OPG	Opening
CONT	Continuous	OPP	Opposite
CORR	Corridor	ORD	Overflow Roof Drain
CT	Ceramic Tile		
CTR	Center	(P)	Paint
		PLY WD	Plywood
DBL	Double	PREP	Preperation
DEPT	Department	PROJ	Project
DF	Drinking Fountain		
DIA	Diameter	R	Radius
DIM	Dimension	RD	Roof Drain
DN	Down	RE:	Refer To
DWG	Drawing	REQD	Required
		RET	Retaining
EA	Each	RF	Roof
EDB	Existing Deck Bearing	RI	Rough-in
EJ	Expansion Joint	RM	Room
EL	Elevation	RO	Rough Opening
ELEC	Electrical		
ELEV	Elevation	SC	Solid Core
ENGR	Engineers	SCH	Schedule
EP	Electrical Panel	SEC	Section
EXH	Exhaust	SF	Square Feet
EXIST	Existing	SIM	Similar
EXT	Exterior	SPEC	Specifications
		SQ	Square
FD	Floor Drain	SQ FT	Square Feet
FE	Finished End	SS	Stainless Steel
FEC	Fire Extinguisher Cabinet	STD	Standard
FFE	Finish Floor Elevation	STR	Structural
FF ELEV	Finish Floor Elevation	SUSP	Suspended
FG	Finish Grade		
FIN	Finish	TB	Tack Board
FLR	Floor	TBC	Top Back of Curb
FOC	Face of Concrete	THK	Thickness
FOF	Face of Finish	THR	Threshold
FOS	Face of Stud	TOB	Top of Beam - Steel
FR	Fire Retardant	TOC	Top of Concrete
FS	Floor Sink	TOF	Top of Footing
FT (')	Foot or Feet	TOS	Top of Slab
FTG	Footing	TOW	Top of Wall
FV	Field Verify	TV	Television
		TYP	Typical
GA	Gauge or Gage		
GC	General Contractor	UNFIN	Unfinished
GI	Galvanized Iron	UNO	Unless Noted Otherwise
GLU-LAM	Glue Laminated Timber		
GYP BD	Gypsum Board	VCT	Vinyl Composition Tile
HC	Hollow Core	W/	With
HDW	Hardware	WAIN	Wainscot
HM	Hollow Metal	WC	Water Closet
HT	Height	WD	Wood
HWS	Handicap Work Station	WP	Weatherproof
		WR	Water Resistant
IBC	International Building Code	WWF	Welded Wire Fabric
ID	Inside Diameter		
IN (")	Inch		
JT	Joint		

GRAPHIC SYMBOLS

- GENERAL NOTE INDICATOR — (E)
- CONSTRUCTION NOTE INDICATOR — 7.2 (DIVISION # / NOTE #)
- DOOR NUMBER — A06 / D1 (ROOM NUMBER / DOOR NUMBER)
- KNURLED KNOB OR LEVER — (K) SHOWN ON SIDE OF DOOR REQUIRED
- WINDOW NUMBER — A07 / W1 (ROOM NUMBER / WINDOW NUMBER)
- WINDOW GLAZING TYPE — (B) SEE DOOR AND WINDOW ELEVATIONS
- ROOM NUMBER INDICATOR — A-105
- FIRE EXTINGUISHER — FE / 5 (FIRE EXTINGUISHER TYPE)
- MARKER OR TACKBOARD NUMBER — M-2 (REFER TO SCHEDULE, DETAILS & SPECIFICATIONS)
- TOILET ACCESSORY NUMBER — (K) REFER TO ENLARGED PLAN & INT. ELEVATIONS
- TILT-UP CONCRETE PANEL ELEVATION — B-8 (PANEL NUMBER) / A9.3 (SHEET NUMBER)
- WALL CONSTRUCTION TYPE — A (REFER TO WALL TYPES AND FLOOR PLANS)
- REFERENCE GRID NUMBER — 3 (GRID LINE)
- DATUM ELEVATION SYMBOL — 100' - 0" F.F.E. (DATUM ELEVATION / DATUM LOCATION)
- DETAIL REFERENCE SYMBOL — 1 / A4.2 (DETAIL NUMBER / SHEET NUMBER; AREA CONSIDERED)
- WALL / DETAIL SECTION SYMBOL — 1 / A8.2 (DETAIL NUMBER / SHEET NUMBER; DIRECTION OF VIEW)
- BUILDING SECTION SYMBOL — 4 / A2.1 (SECTION NUMBER / SHEET NUMBER; SECTION CUT LINE)
- EXTERIOR ELEVATION SYMBOL — INDICATES EXTERIOR ELEVATION SHOWN; 3 (ELEVATION NUMBER) / A1.1 (SHEET NUMBER)
- INTERIOR ELEVATION SYMBOL — INDICATES INTERIOR ELEVATION SHOWN; SHEET NUMBER 7; 6 (ELEVATION NUMBER) / A1.1 (SHEET NUMBER)
- FLOOR FINISH SYMBOL — FC (REFER TO FINISH FLOOR PLANS, INTERIOR ELEVS & SCHEDULES)
- BASE FINISH SYMBOL — RB (REFER TO FINISH FLOOR PLANS, INTERIOR ELEVS & SCHEDULES)
- WALL FINISH SYMBOL — WP (REFER TO FINISH FLOOR PLANS, INTERIOR ELEVS & SCHEDULES)
- CEILING FINISH SYMBOL — CP (REFER TO REFLECTED CEILING PLAN & SCHED)

MASTER INDEX TO DRAWINGS

STATE OF UTAH — TERRANCE R. WHITLOCK — 9205478 — REGISTERED ARCHITECT

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St. George, UT 84770
Tel: 435 656-2883

IRON COUNTY
2077 West Royal Hunt Drive
Cedar City, UT 84720
Tel: 435 586-2815

THE NEW
BUS GARAGE
for the Board of Education
IRON COUNTY SCHOOL DISTRICT

ISSUE DATE: JANUARY 9, 2026
DRAWN BY: JA, HH
CHECKED BY: TW, AH

REVISIONS

NO	DATE	DESCRIPTION
1	2026.01.13	ADDENDUM #1

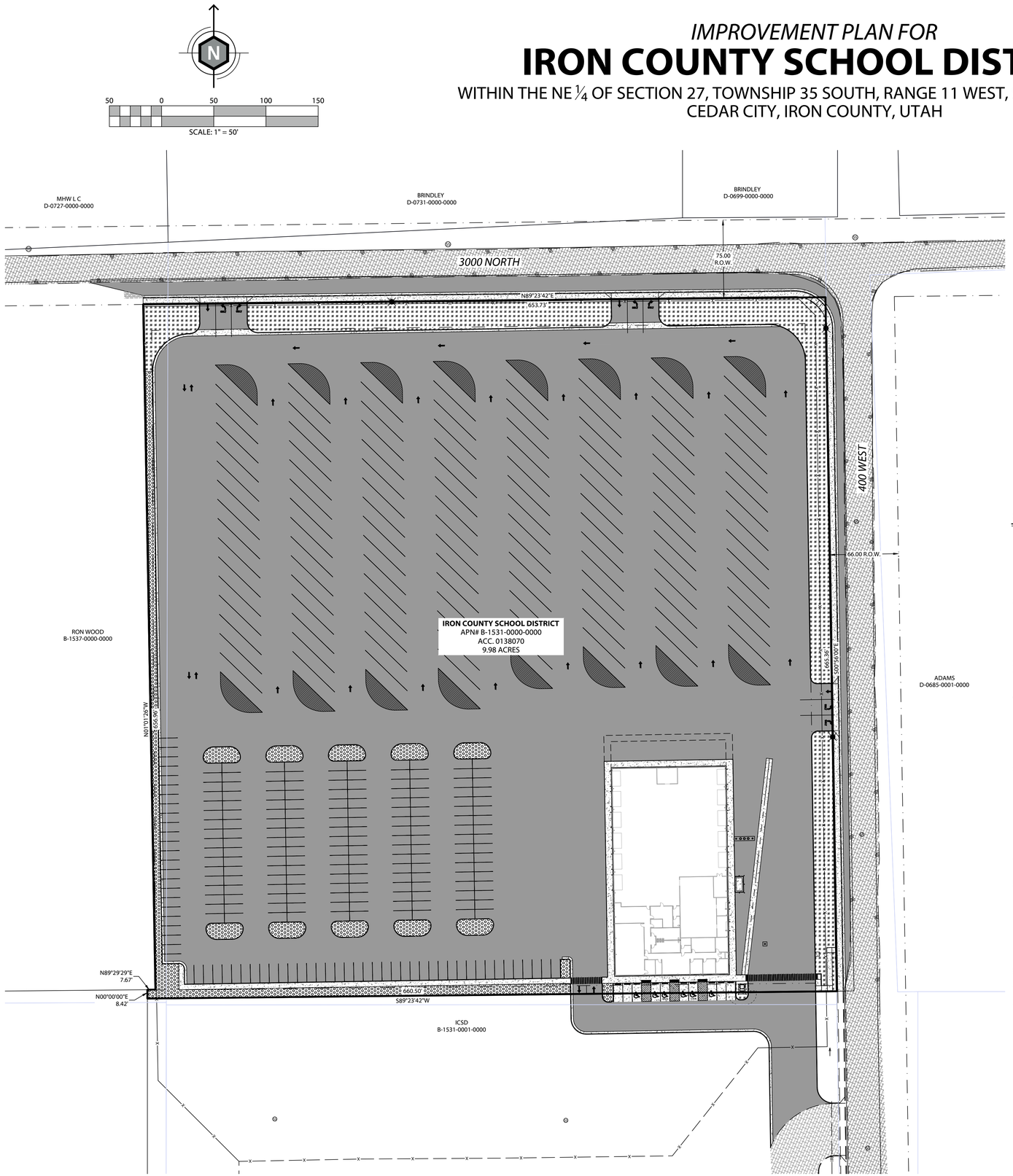
COVER SHEET, LEGENDS, INDEX TO DRAWINGS

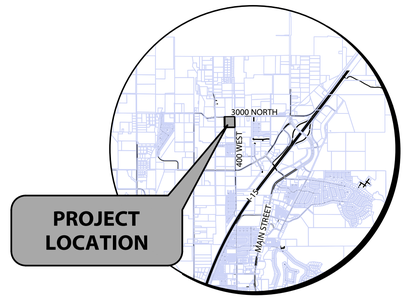
T101

IMPROVEMENT PLAN FOR

IRON COUNTY SCHOOL DISTRICT

WITHIN THE NE ¼ OF SECTION 27, TOWNSHIP 35 SOUTH, RANGE 11 WEST, SALT LAKE MERIDIAN
CEDAR CITY, IRON COUNTY, UTAH





N

VICINITY MAP
N.T.S.

SHEET INDEX

ELEVATION BENCH MARK

THE BENCH MARK (BM) ELEVATIONS FOR THIS PROJECT ARE 5567.32', WHICH IS AN ADAMS REBAR & CAP FOUND AT THE SOUTHWEST SIDE OF THE PROPERTY AND 5578.89', WHICH IS THE TOP BACK OF CURB AT THE NORTH END OF EXISTING CURB ALONG 400 WEST; AS SHOWN ON SHEETS C1 & C3. THE ELEVATION DATUM FOR THIS PROJECT IS NGVD 29.

ENGINEER'S CERTIFICATE

I, TIM G. WATSON, REGISTERED PROFESSIONAL ENGINEER No. 5049564, HOLD A LICENSE IN ACCORDANCE WITH TITLE 58, CHAPTER 22, PROFESSIONAL ENGINEERS AND LAND SURVEYORS LICENSING ACT, DO HEREBY CERTIFY THAT THE DESIGN FOR THIS COMMERCIAL SITE IMPROVEMENT, WAS CONDUCTED BY MYSELF AND UNDER MY DIRECT SUPERVISION AT THE REQUEST OF MR. HUNTER SHAHEEN.

TIM G. WATSON, P.E.

January 7, 2026
DATE

GENERAL REQUIREMENT NOTES

1. SITE INFORMATION:
   - 1.1. PROPERTY OWNER: IRON COUNTY SCHOOL DISTRICT
     - 1.1.1. HUNTER SHAHEEN
     - 1.1.2. (435) 704-4517
     - 1.1.3. HUNTER.SHAHEEN@IRONMAIL.ORG
   - 1.2. ADDRESS: APPROX. 3000 N 400 W, CEDAR CITY, UTAH
   - 1.3. APN#: B-1531-0000-0000.
   - 1.4. 9.98 ACRES
2. SITE ZONING: RESIDENTIAL ZONE (R-1)
   - 2.1. SETBACKS:
     - 2.1.1. SIDE: 8' MIN, 20' MIN TOTAL.
       - 2.1.1.1. CORNER LOT: 20' ADJACENT TO R.O.W.
     - 2.1.2. FRONT: 25' MIN.
     - 2.1.3. REAR: 30' MIN.
       - 2.1.3.1. CORNER LOT: 8' MIN.
3. SITE AIRPORT COMPATIBILITY ZONE: AIRPORT APPROACH ZONE (AZ)
4. SITE FLOOD ZONE: ZONE C, PER MAP 49007307258, DATED 7/17/1986 AND LOMR'S 01-08-078P-490074 (DATED MAR 26, 2001) AND 01-08-078P-490073 (DATED MAR 26, 2001).
5. SITE SOIL AREA, PER CEDAR CITY RELATIVE HYDROCOMPACTION SUSCEPTIBILITY MAP (PRINTED FEBRUARY 2021):
   - 5.1. MINIMALLY SUSPECT SOILS. SOME POSSIBILITY OF OCCURRENCE: HYDROCOMPACTIBLE SOILS IN THIS ZONE ARE LIKELY TO BE THIN AND SHALLOW. TESTING DESIRABLE BEFORE PURCHASING OR DEVELOPING LAND RECOMMENDATION: 1 TEST HOLE PER 20 LOTS. 50 FEET MINIMUM DEPTH INTO SOIL OR AT LEAST 5 FEET INTO BEDROCK, TO ACQUIRE UNDISTURBED SOILS FOR LABORATORY TESTING.
6. PARKING CALCULATION PER ORDINANCE SECTION 26-V-5D: GOVERNMENTAL BUILDINGS NOT FREQUENTLY VISITED BY THE PUBLIC, SUCH AS FIRE STATIONS: ONE (1) SPACE FOR EACH 600 SQUARE FEET OF FLOOR SPACE. (22078 FT^2 BUILDING)
   - 6.1. TOTAL PARKING SPACES REQUIRED: (37) PARKING STALLS
     - 6.1.1. 2,2064 FT^2 / 600 FT^2 = (36.8) STALLS
   - 6.2. PUBLIC/EMPLOYEE PARKING SPACES PROVIDED: (186) TOTAL PARKING STALLS
     - 6.2.1. (180) 18'x9' PARKING STALLS
     - 6.2.2. (6) ADA STALLS
   - 6.3. FLEET/SERVICE PARKING SPACES PROVIDED: (58) 18'x9' PARKING STALLS
   - 6.4. BUS PARKING PROVIDED: (124) 43'x13' STALLS
7. LANDSCAPE REQUIREMENTS (PER CEDAR CITY ORDINANCES, SEC. 26-VI):
   - 7.1. LANDSCAPING REQUIRED (10'xFRONTAGE (1,319.09 FT)) = 13,190.9 SQ.FT.
   - 7.2. PROVIDED LANDSCAPING VISIBLE FROM STREET = ±27,320.9 SQ.FT.
8. UTILITIES SHOWN
   - 8.1. WATER & SEWER: LOCATION PER BLUE STAKES AND ABOVE GROUND FEATURES; PIPE SIZE AND MATERIAL PER CEDAR CITY GIS INFORMATION.
   - 8.2. ABOVE GROUND: LOCATED BASED ON SURFACE FEATURES FOUND DURING SITE SURVEY.
   - 8.3. UNDERGROUND: LOCATION BASED UPON BLUE STAKES INFORMATION. ADDITIONAL LOCATION INFORMATION BASED ON CEDAR CITY GIS INFORMATION AND CEDAR CITY DESIGN STANDARDS. CONTRACTOR TO CALL BLUE STAKES TO VERIFY SIZE, TYPE, DEPTH AND LOCATIONS PRIOR TO CONSTRUCTION.
9. CONTOUR INTERVAL: 5' INDEX, 1' INTERMEDIATE.
10. ERU CALCULATION: 412,637.69 SQ.FT. / 3600 = 114.62
11. COORDINATES SHOWN HEREON ARE ON THE CEDAR CITY CONTROL NETWORK USING THE CITY'S GPS BASE STATION AND CALIBRATION.
12. STORM WATER DETENTION REQUIREMENTS
    - 12.1. 57,115 CUBIC FEET REQUIRED.
    - 12.2. 57,126 CUBIC FEET PROVIDED.

UTILITY CONTACT INFORMATION

ROCKY MOUNTAIN POWER	CAROLYN DELEEUW	435-865-3310
	KAMERON SHORTT	435-865-3315
ENBRIDGE GAS	KEILY BEEBE	435-674-6132
	KRISTEN POWELL	801-324-3351
FUGAL/CENTURY LINK	ZACH MATHEWS	435-668-7445
	CHUCK TAYLOR	801-403-9565
	DALE PATRICK	435-525-3249
SOUTH CENTRAL	MARSHAL JACKSON	435-494-5745
	BRIAN STOWE	435-616-0509
T.D.S.	NATHAN JOHNSON	Cell: 435-590-2272 Office: 435-233-7461
	LEVI COSTIGAN	Cell: 435-590-5802
INFOWEST	DALLIN PEAD	435-359-7778
CITY ENGINEER	KENT FUGAL	435-465-2599
CEDAR CITY WATER	MATT BAKER	435-586-2904
CEDAR CITY SEWER	ERIC BONZO	435-867-9426
CEDAR CITY STORM DRAIN	ERIC WITZKE	435-865-4555
CEDAR CITY STREETS	ERIC WITZKE	435-865-4555

UTILITY COMPANY NOTES:

1. CENTURYLINK:
   - 1.1. DEVELOPER TO PROVIDE ALL TRENCHING AND PLACEMENT OF A 4" CONDUIT, SWEEPS ONLY.
   - 1.2. CONTRACTOR TO INSTALL CONDUIT AND PLACE A PULL STRING IN ALL CONDUITS TO VERIFY CONDUIT INTEGRITY.
   - 1.3. PROVIDE #6 SOLID GROUND WIRE TO CENTURY LINK DEMARCATION POINT. IF TERMINAL IS INSIDE A 4'x8'x¾" PLYWOOD BACKBOARD IS REQUIRED.
   - 1.4. IF DMARC IS OUTSIDE DEVELOPER REQUIRED TO INSTALL 30"x30"x10" WEATHER PROOF BOX w/ BACKBOARD.
   - 1.5. CONTACT CENTURYLINK ENGINEER BRAXTON PETERSON AT 435-884-7920, 45 DAYS BEFORE ANY SERVICE IS REQUIRED TO SET UP SITE VISIT AND REPORT ANY CHANGES TO J.U.C. APPROVED PLANS.
   - 1.6. ANY PLANT RELOCATION ASSOCIATED WITH THE PROJECT WILL BE BILLABLE TO OWNER/DEVELOPER AND MUST BE SCHEDULED A MINIMUM OF 3 WEEKS IN ADVANCE.
   - 1.7. FAILURE TO COMPLY WITH THE ABOVE REQUIREMENTS WILL CAUSE A DELAY IN SERVICE
2. TDS, CATV/BROADBAND NOTES:
   - 2.1. THE DEVELOPER WILL PROVIDE ALL REQUIRED TRENCH WITHIN THE PROJECT. ANY MODIFICATIONS ALONG THE PERIPHERY TO FEED THIS PROJECT WILL BE BILLED TO THE DEVELOPER.
   - 2.2. TDS WILL PROVIDE CONDUITS. PLEASE CONTACT NATHAN JOHNSON AT 435-590-2272 AT LEAST 3 WEEKS PRIOR TO OPENING TRENCH TO SCHEDULE WORK.
   - 2.3. ANY QUESTIONS REGARDING SERVICE SHOULD BE DIRECTED TO DAVID TRAUNTVEIN WITH TDS AT 435-703-8932
   - 2.4. RELOCATION OF NEW OR EXISTING TDS FACILITIES WILL BE BILLABLE TO THE DEVELOPER/CONTRACTOR
   - 2.5. ANY MODIFICATIONS AFTER CONDUIT/CABLE PLACEMENT WILL BE BILLABLE TO THE DEVELOPER/CONTRACTOR AS WILL DAMAGES CAUSED BY OTHER CONTRACTORS WORKING FOR THE DEVELOPER ON THIS PROJECT.

LAND USE TABLE

ITEM	AREA (SQ.FT)	% OF TOTAL
LANDSCAPE	39,837.67	8.90
BUILDING FOOT PRINT	22,064.11	4.93
CONCRETE	15,067.05	3.37
PAVEMENT	370,659.90	82.81
TOTAL	447,628.73	100.00

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COLOR CODE
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GREEN	Sewer and Drain Lines

WATSON ENGINEERING COMPANY, INC.

472 N 2150 W, Suite 7
Cedar City, UT 84721

Tel. (435) 586-3004

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COVER SHEET

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

PROFESSIONAL ENGINEER
Jan. 7, 2026
No. 5049564
TIM G. WATSON
STATE OF UTAH

DRAWN BY:
C.A. SWASEY

CHECKED BY:
T. G. WATSON

DATE:
January 7, 2026

SCALE:
1:50

WATSON PROJECT No.:
25-7745

FILE:
ICSD_BUSGARAGE - CDS.DWG

sheet
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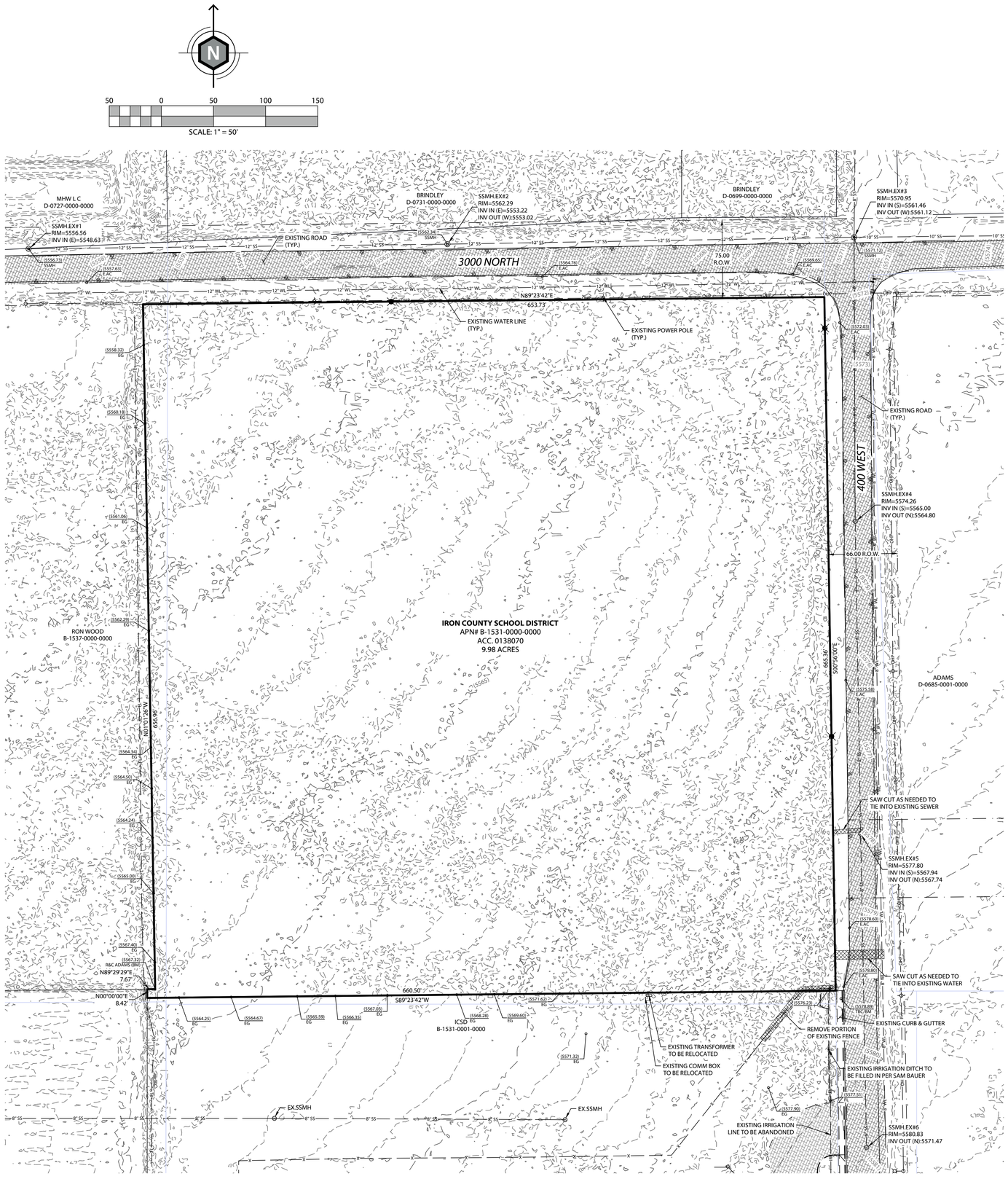
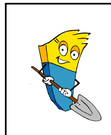


EXISTING CONDITIONS AND DEMOLITION NOTES

1. SITE BENCH MARK:
   - 1.1. PRIMARY BENCHMARK: ELEVATION IS 5567.32'. WHICH IS AN EXISTING REBAR FOUND AT THE SOUTHWEST SIDE OF THE PROPERTY, AS SHOWN HEREON.
   - 1.2. SECONDARY BENCHMARK: ELEVATION IS 5578.89'. WHICH IS THE TOP BACK OF CURB AT THE NORTH END OF THE CURB ALONG 400 WEST, AS SHOWN HEREON.
   - 1.3. IF AN ADDITIONAL BENCHMARK IS REQUIRED DURING CONSTRUCTION THE CONTRACTOR SHALL COORDINATE WITH THE CONSTRUCTION STAKING COMPANY.
2. EXISTING UTILITIES:
   - 2.1. THE CONTRACTOR TO VERIFY ANY AND ALL EXISTING UTILITIES WITHIN THE CONSTRUCTION AREA.
   - 2.2. IF A UTILITY REQUIRES RELOCATION COORDINATE WITH THE UTILITY OWNER FOR ANY AND ALL REQUIREMENTS.
   - 2.3. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DONE TO UTILITIES OR RELATED EQUIPMENT OUTSIDE OF THE CONSTRUCTION ZONE DURING CONSTRUCTION, AND WILL BE RESPONSIBLE FOR ANY AND ALL REPAIRS OR REPLACEMENT OF THE UTILITIES AND/OR RELATED EQUIPMENT.
   - 2.4. THE EXISTING 'EAST EXTENSION DITCH COMPANY IRRIGATION LINE' ON SITE TO BE ABANDONED & FILLED IN PER SAM BAUER.
3. EXISTING BUILDING DEMOLITION:
   - 3.1. THE CONTRACTOR IS TO REVIEW THE BUILDING DEMOLITION PLANS FOR ANY ADDITIONAL DEMOLITION REQUIREMENTS NOT SHOWN HEREON.
4. NEW UTILITIES:
   - 4.1. ADDITIONAL DEMOLITION AND REPLACEMENT OF EXISTING SIDEWALK, "A" CURB, AND PAVEMENT, NOT SHOWN, MAY BE REQUIRED FOR ANY NEW UTILITY SERVICE CONNECTIONS TO THE BUILDING ADDITION. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR SERVICE LINE LOCATION AND REQUIREMENTS, TRENCH REQUIREMENTS, AND CONNECTION TO EXISTING UTILITY LINE REQUIREMENTS.

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY (R.O.W.)
- EXISTING R.O.W. CENTERLINE
- EXISTING FENCE LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING 30" CURB & GUTTER
- EXISTING SEWER LINE (SIZE SPECIFIED)
- EXISTING WATER LINE (SIZE SPECIFIED)
- EXISTING EASEMENT
- EXISTING OVERHEAD POWER LINE
- EXISTING FLOW LINE (FLOW DIRECTION AS INDICATED)
- EXISTING IRRIGATION LINE
- ADJACENT PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- NEW UNDERGROUND POWER LINE
- NEW 4" SEWER LATERAL
- NEW WATER LATERAL
- NEW WATER LINE
- NEW COMMUNICATIONS LINE
- NEW ASPHALT PAVEMENT
- EXISTING ASPHALT PAVEMENT
- NEW CONCTRETE CURBING & SIDEWALK
- NEW VISIBLE LANDSCAPING PER CEDAR CITY ORDINANCE
- NEW ONSITE LANDSCAPING
- DEMOLITION
- EXISTING UTILITY POLE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED FIRE HYDRANT



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EXISTING CONDITIONS & DEMOLITION PLAN

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

PROFESSIONAL ENGINEER
Jan. 7, 2026
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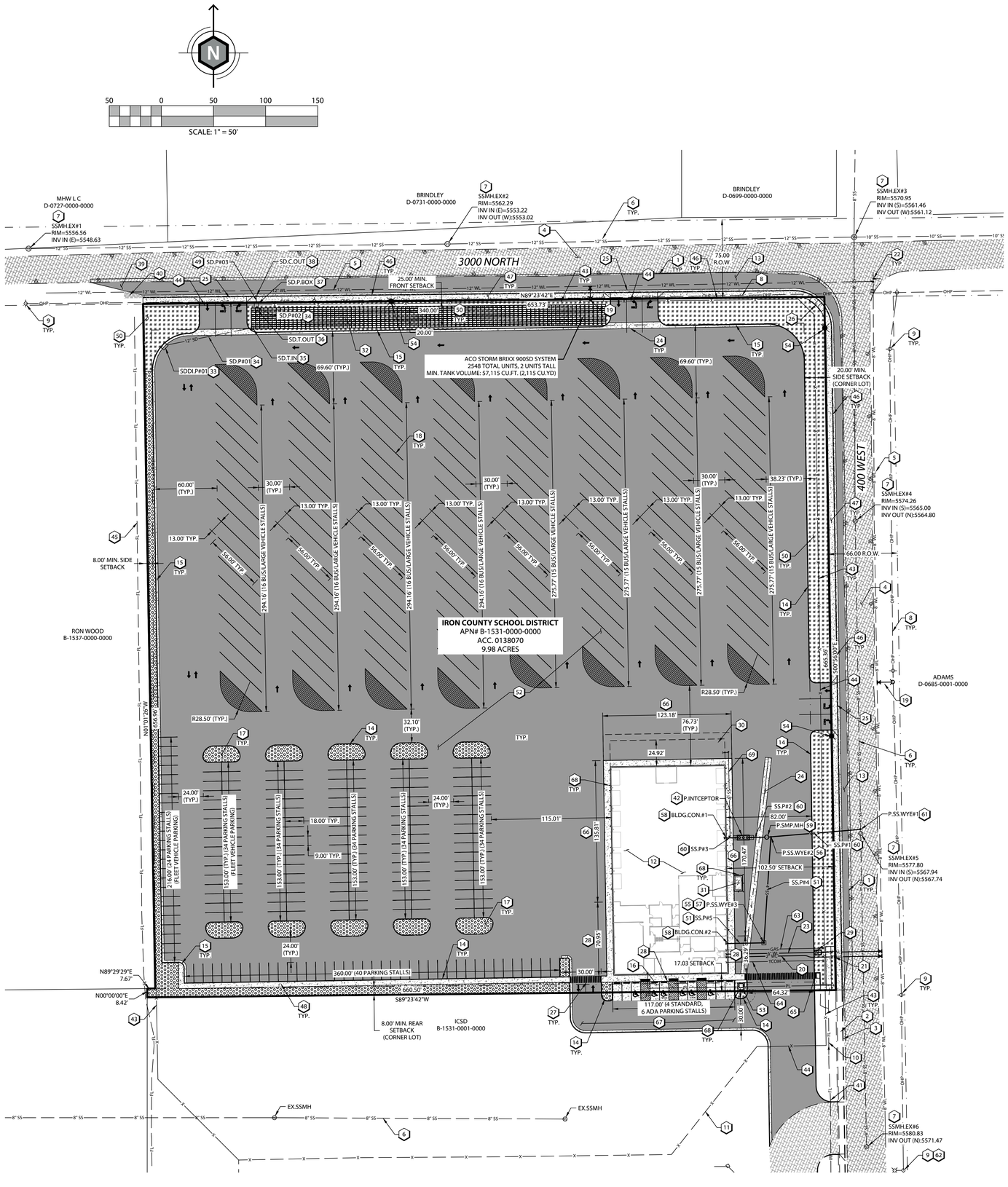

CONSTRUCTION NOTES

1. EXISTING EDGE OF ASPHALT.
2. EXISTING SIDEWALK. CONTRACTOR TO REPLACE ANY SECTIONS DAMAGED DURING CONSTRUCTION.
3. EXISTING CONCRETE CURB & GUTTER, "TYPE A". CONTRACTOR TO REPLACE ANY SECTIONS DAMAGED DURING CONSTRUCTION.
4. EXISTING ROADWAY PAVEMENT.
5. EXISTING WATER LINE (SIZE SPECIFIED). CONTRACTOR TO FIELD VERIFY LOCATION, SIZE, DEPTH, AND MATERIAL.
6. EXISTING SANITARY SEWER LINE (SIZE SPECIFIED). CONTRACTOR TO FIELD VERIFY LOCATION, SIZE, DEPTH, AND MATERIAL.
7. EXISTING SANITARY SEWER MANHOLE. CONTRACTOR TO FIELD VERIFY LOCATION, SIZE, DEPTH, AND MATERIAL.
8. EXISTING OVERHEAD POWER LINE TO REMAIN IN PLACE.
9. EXISTING POWER POLE
10. EXISTING DITCH FLOWLINE. DITCH TO BE ABANDONED & BACKFILLED PER SAM BAUER.
11. EXISTING FENCE.
12. NEW BUILDING LOCATION.
13. INSTALL ASPHALT PAVEMENT PER CEDAR CITY STANDARD DETAIL R4, SHEET CD2 & PER DETAIL 111, SHEET CD1.
14. INSTALL "A CURB" PER DETAIL 107, SHEET CD1.
15. INSTALL 30" 'L' CURB PER DETAIL 105, SHEET CD1.
16. INSTALL ADA PARKING AREA PER DETAIL 201, SHEET CD1.
17. INSTALL PARKING LANDSCAPE ISLANDS. LANDSCAPING TO BE DETERMINED BY OWNER.
18. DIAGONAL BUS PARKING STALL STRIPING.
19. INSTALL 6" DUCTILE IRON PIPE W/ FIRE HYDRANT & VALVE PER CEDAR CITY STANDARD DETAIL W2, SHEET CD3.
20. INSTALL 2" RIGID COPPER TYPE 'K' WATER LINE PIPE PER CEDAR CITY STANDARD DETAIL WS, SHEET CD3.
21. INSTALL 2" WATER METER PER CEDAR CITY STANDARD DETAIL WS, SHEET CD3.
22. EXISTING WATER VALVE CLUSTER.
23. INSTALL 6" DUCTILE IRON PIPE PER CEDAR CITY STANDARD DETAIL R1, SHEET CD2 FOR PUBLIC PORTION OF PIPE AND 6" PVC PIPE FOR THE PRIVATE PORTION OF PIPE.
24. INSTALL 6' CONCRETE VALLEY GUTTER PER DETAIL 106, SHEET CD1.
25. INSTALL CONCRETE DRIVEWAY APPROACH PER CEDAR CITY STANDARD DETAIL C3, SHEET CD2.
26. INSTALL CONCRETE ADA RAMP PER CEDAR CITY STANDARD DETAIL C5, SHEET CD2.
27. INSTALL CROSSWALK STRIPING.
28. INSTALL 6' CONCRETE SIDEWALK/APRON W/ THICKENED EDGE PER DETAIL 103, SHEET CD1 & DETAIL 109, SHEET CD1.
29. INSTALL FIRE LOOP LEAK DETECTOR PER CEDAR CITY STANDARD DETAIL W8, SHEET CD3.
30. BUS WASH ADD ALTERNATIVE. SEE SHEET C3 FOR ADD ALTERNATE GRADING.
31. INSTALL USED OIL BOX W/ CONCRETE CONTAINMENT BASIN PER DETAIL 108, SHEET CD1.
32. INSTALL UNDERGROUND RETENTION SYSTEM PER DETAIL 204, SHEET CD4.
33. INSTALL STORM DRAIN DOUBLE INLET BOX PER DETAIL 205, SHEET CD4.
34. INSTALL 12" HDPE STORM DRAIN PIPE PER CEDAR CITY STANDARD DETAIL R1, SHEET CD2, SEE STORM DRAIN TABLES ON SHEET C3.
35. INSTALL STORM WATER DETENTION TANK INLET, PER DETAIL 204 SHEET CD4, SEE STORM DRAIN TABLES ON SHEET C3.
36. INSTALL STORM WATER DETENTION TANK OUTLET, PER DETAIL 204 SHEET CD4, SEE STORM DRAIN TABLES ON SHEET C3.
37. INSTALL STORM DRAIN PUMP BOX PER, DETAIL 205, SHEET CD4. SEE STORM DRAIN TABLES ON SHEET C3.
38. INSTALL STORM DRAIN CURB OUTLET PER CEDAR CITY STANDARD DETAIL D3, SHEET CD2. SEE STORM DRAIN TABLES ON SHEET C3.
39. INSTALL ASPHALT ROADWAY TAPER PER CEDAR CITY STANDARD DETAIL R10, SHEET CD2.
40. INSTALL DRAINAGE RIP-RAP.
41. CAP EXISTING CULVERT. CONTRACTOR TO FIELD VERIFY LOCATION, SIZE, DEPTH, AND MATERIAL.
42. INSTALL OIL/WATER SEPARATOR PER CEDAR CITY STANDARD DETAIL S4, SHEET CD3.
43. INSTALL NEW FENCE. HEIGHT & MATERIAL PER OWNER.
44. INSTALL FENCED ENTRY GATES. HEIGHT & MATERIAL PER OWNER.
45. EXISTING IRRIGATION DITCH FLOWLINE TO REMAIN IN PLACE.
46. INSTALL CONCRETE CURB & GUTTER, "TYPE A" PER CEDAR CITY STANDARD DETAIL C1, SHEET CD2.
47. INSTALL 5' CONCRETE SIDEWALK PER CEDAR CITY STANDARD DETAIL C6, SHEET CD2, AND DETAIL 103 SHEET CD1.
48. INSTALL 4' CONCRETE SIDEWALK PERCEDAR CITY STANDARD DETAIL C6, SHEET CD2, AND DETAIL 103 SHEET CD1.
49. INSTALL PUMP DISCHARGE PIPE. SEE STORM DRAIN TABLES ON SHEET C3.
50. INSTALL LANDSCAPE STRIP. LANDSCAPING TO BE DETERMINED BY OWNER.
51. INSTALL 4" SANITARY SEWER PIPE PER CEDAR CITY STANDARD DETAIL S1, SHEET CD3.
52. INSTALL BUS PARKING ASPHALT PAVEMENT PER DETAIL 101, SHEET CD1 & SHEET C4.
53. INSTALL POWER SERVICE LINE & TRANSFORMER. COORDINATE WITH UTILITY COMPANY.
54. INSTALL STREET LIGHT, PER CEDAR CITY DETAIL R14 SHEET CD3.
55. INSTALL 4" SANITARY SEWER WYE.
56. INSTALL 6"x4" SANITARY SEWER REDUCING WYE
57. INSTALL SANITARY SEWER CLEAN OUT, MATCH PIPE SIZE.
58. SEWER CONNECTION TO BUILDING, CONTRACTOR TO VERIFY LOCATION WITH BUILDING PLANS AND ADJUST THIS LOCATION AS REQUIRED.
59. SEWER SAMPLING MANHOLE PER CEDAR CITY DETAILS S4 SHEET CD3, AND S2 SHEET CD3.
60. INSTALL 6" SANITARY SEWER PIPE PER CEDAR CITY STANDARD DETAIL R1, SHEET CD2.
61. INSTALL 6" SADDLE TAP WYE TO EXISTING SANITARY SEWER MAIN.
62. EXISTING UTILITY POLE w/ STREET LIGHT.
63. INSTALL NATURAL GAS SERVICE LINE. COORDINATE WITH UTILITY COMPANY.
64. INSTALL TELECOMMUNICATIONS SERVICE LINES. COORDINATE WITH UTILITY COMPANY.
65. INTSALL DETECTABLE WARNING PAD ON ADA ACCESS ROUTE PER DETAIL 202, SHEET CD1.
66. INSTALL CONCRETE APRON W/ THICKENED EDGE PER DETAIL 102, SHEET CD1 & DETAIL 113, SHEET CD1
67. INSTALL PARKING ASPHALT PAVEMENT PER DETAIL 104, SHEET CD1 & SHEET C4.
68. INSTALL Ø6" BOLLARD PER DETAIL 110, SHEET CD1.
69. ADD. ALT. WASH BAY 6" SANITARY SEWER PIPE PER CEDAR CITY STANDARD DETAIL R1, SHEET CD2.
70. INSTALL SIDEWALK RAMP PER ADA ROUTE TO PUBLIC RIGHT-OF-WAY DETAIL ON SHEET C3.

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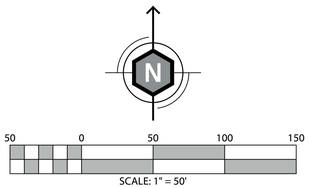


EARTHWORK QUANTITIES

RAW EARTHWORK QUANTITIES SHOWN BELOW ARE FROM EXISTING GRADE TO DESIGN FINISH GRADE AND DO NOT ACCOUNT FOR MATERIAL LOSE DUE TO LARGE ROCKS, ORGANIC MATERIAL, PAVEMENT AREAS, SIDE WALK AREAS, ETC.

RAW CUT	2,938.44 CU.YD.
RAW FILL	21,481.17 CU.YD.
IMPORT VOLUME	18,542.73 CU.YD.

ADJUSTED CUT VOLUME BELOW IS AN ESTIMATE BASED UPON THE 25% SOILS LOSS PER THE SOILS REPORT, AND DOES NOT ACCOUNT FOR VOLUME LOSS DUE TO LARGE ROCKS, ORGANIC MATERIAL, AND OTHER SIMILAR ITEMS.

ADJUSTED CUT VOLUME	2,203.83 CU. YD
ESTIMATED CONCRETE AND PAVEMENT VOLUME	10,809.57 CU. YD
ADJUSTED IMPORT VOLUME	**8,467.77 CU. YD**

LAND USE TABLE

ITEM	AREA (SQ.FT)	% OF TOTAL
LANDSCAPE	39,837.67	8.90
BUILDING FOOT PRINT	22,064.11	4.93
CONCRETE	15,067.05	3.37
PAVEMENT	370,659.90	82.81
TOTAL	447,628.73	100.00

SANITARY SEWER PIPE TABLE			
NAME	SIZE & MATERIAL	LENGTH	SLOPE
SS.P#1	6" PVC	88.369'	-1.02%
SS.P#2	6" PVC	18.471'	-1.22%
SS.P#3	6" PVC	14.331'	-1.14%
SS.P#4	8" PVC	101.957'	-1.00%
SS.P#5	8" PVC	34.423'	-1.00%

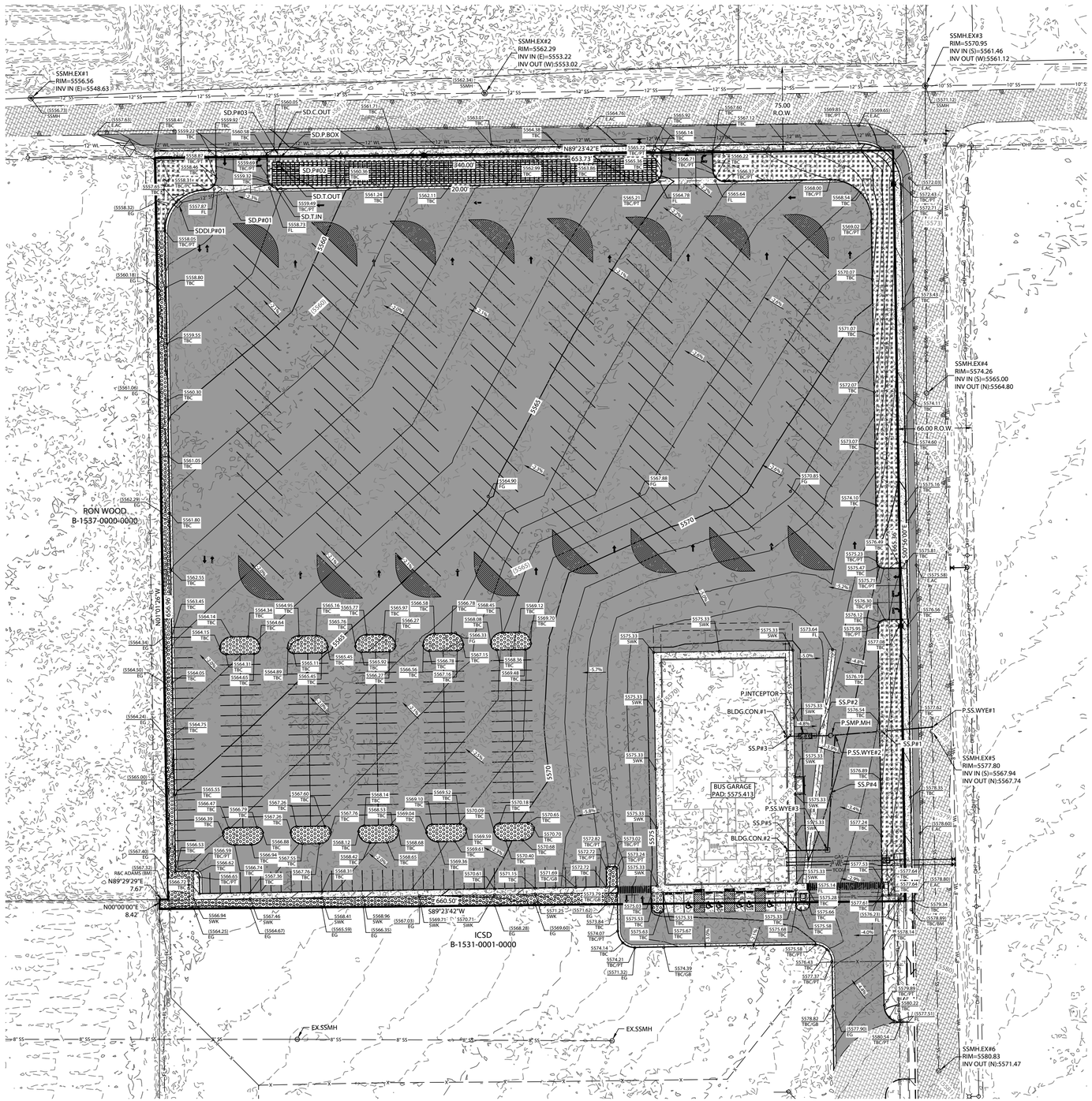
SANITARY SEWER NOTES:
1. ABBREVIATIONS
   - 1.1. BLDG.COM — CONNECTION TO BUILDING OUTLET
   - 1.2. P.INTCEPTOR — GREAST, OIL, & SAND INTERCEPTOR
   - 1.3. P.SMP.MH — NEW SAMPLING MANHOLE
   - 1.4. P.SS.WYE# — NEW SANITARY SEWER WYE
   - 1.5. SS.P# — SANITARY SEWER PIPE

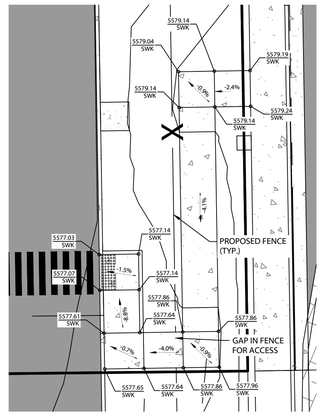
STORM DRAIN STRUCTURE TABLE		
STRUCTURE NAME:	DETAILS:	CL STRUCTURE COORDINATES:
SD.C.OUT	CURB OUTLET RIM = 5559.63 INV IN (S)= 5558.52 (SD.P#03)	N= 126688.17 E= 112574.41
SD.P.BOX	PUMP BOX RIM = 5560.23 INV IN (S)= 5545.05 (SD.P#02) INV OUT (N)= 5558.24 (SD.P#03)	N= 126679.51 E= 112574.50
SD.T.IN	TANK INLET RIM = 5559.52 INV IN (W)= 5552.84 (SD.P#01)	N= 126657.47 E= 112570.73
SD.T.OUT	TANK OUTLET RIM = 5560.15 INV OUT (N)= 5545.09 (SD.P#02)	N= 126675.51 E= 112574.54
SDDI.P#01	36"x60" D.I. w/ DBL CURB INLET RIM = 5557.49 INV OUT (E)= 5553.68 (SD.P#01)	N= 126639.75 E= 112486.35

SANITARY SEWER STRUCTURE TABLE		
STRUCTURE NAME:	DETAILS:	CL STRUCTURE COORDINATES:
BLDG.CON.#1	SEWER CONNECTION TO BUILDING RIM = 5571.34 INV OUT (E)= 5570.61 (SS.P#3)	N= 126168.00 E= 113025.31
BLDG.CON.#2	SEWER CONNECTION TO BUILDING RIM = 5571.34 INV OUT (E)= 5570.62 (SS.P#5)	N= 126066.68 E= 113026.96
P.INTCEPTOR	GREASE, OIL, & SAND INTERCEPTOR RIM = 5574.95 INV IN (W)= 5570.45 (SS.P#3) INV OUT (E)= 5569.70 (SS.P#2)	N= 126168.32 E= 113041.63
P.SMP.MH	48" SAMPLING MANHOLE RIM = 5576.46 INV IN (W)= 5569.47 (SS.P#2) INV OUT (E)= 5569.27 (SS.P#1)	N= 126168.74 E= 113064.09
P.SS.WYE#1	CONNECTION TO EXISTING SANITARY SEWR PIPE RIM = 5569.10 INV IN (W)= 5568.37 (SS.P#1)	N= 126176.20 E= 113154.15
P.SS.WYE#2	SEWER WYE RIM = 5569.98 INV IN (S)= 5569.25 (SS.P#4)	N= 126169.07 E= 113068.08
P.SS.WYE#3	SEWER WYE RIM = 5571.00 INV IN (W)= 5570.27 (SS.P#5) INV OUT (N)= 5570.27 (SS.P#4)	N= 126067.33 E= 113061.38

STORM DRAIN PIPE TABLE				
NAME	SIZE & MATERIAL	LENGTH	SLOPE	FLOW RATE
SD.P#01	12" HDPE	82.682'	1.02%	3.9 CFS
SD.P#02	12" HDPE	1.511'	2.65%	6.3 CFS
SD.P#03	3" HDPE	7.172'	-4.04%	0.2 CFS

STORM DRAIN NOTES:
1. SD.P.BOX
   - 1.1. CONTRACTOR TO SELECT A PUMP WITH A MAXIMUM OUTPUT OF 2.07 CFS.
   - 1.2. CONTRACTOR TO RESIZE THIS BOX AS REQUIRED TO MAINTAIN THE MINIMUM REQUIRED CLEARANCES FOR THE SELECTED PUMP.
   - 1.3. CONTRACTOR TO PROVIDE A SPECIFICATION SHEET TO THE CEDAR CITY ENGINEERING DEPARTMENT BEFORE INSTALLATION OF PUMP FOR CITY APPROVAL.
2. SD.P#03
   - 2.1. PIPE SIZE AND MATERIAL TO MATCH THE OUTLET OF THE SELECTED PUMP.
3. ABBREVIATIONS
   - 3.1. D.TANK.INLET — DETENTION TANK INLET
   - 3.2. D.TANK.OUT — DETENTION TANK OUTLET
   - 3.3. SD.D# — STORM DRAIN INLET BOX
   - 3.4. SD.P# — STORM DRAIN PIPE
   - 3.5. SD.P.MES — METAL END SECTION





ADA ROUTE TO PUBLIC RIGHT-OF-WAY

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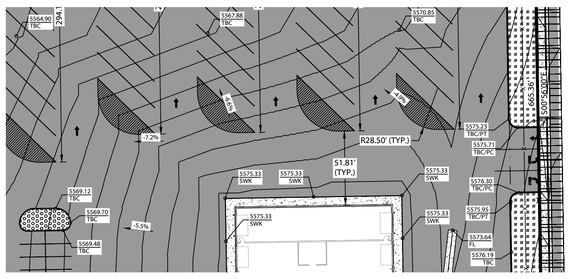

ADD ALTERNATIVE 1 - GRADING CHANGES

SCALE: 1:50

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY (R.O.W.)
- EXISTING R.O.W. CENTERLINE
- EXISTING FENCE LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING 30" CURB & GUTTER
- EXISTING SEWER LINE (SIZE SPECIFIED)
- EXISTING WATER LINE (SIZE SPECIFIED)
- EXISTING EASEMENT
- EXISTING OVERHEAD POWER LINE
- EXISTING FLOW LINE (FLOW DIRECTION AS INDICATED)
- EXISTING IRRIGATION LINE
- ADJACENT PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- NEW UNDERGROUND POWER LINE
- NEW 4" SEWER LATERAL
- NEW WATER LATERAL
- NEW WATER LINE
- NEW COMMUNICATIONS LINE
- NEW ASPHALT PAVEMENT
- EXISTING ASPHALT PAVEMENT
- NEW CONCTRETE CURBING & SIDEWALK
- NEW VISIBLE LANDSCAPING PER CEDAR CITY ORDINANCE
- NEW ONSITE LANDSCAPING
- DEMOLITION
- EXISTING UTILITY POLE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED FIRE HYDRANT

GRADING ABBREVIATIONS:

E.AC	EDGE OF PAVEMENT
CONC	TOP OF CONCRETE
EG	EXISTING GRADE
EX.SSMH	EXISTING SS MANHOLE LID
FG	FINISH GRADE
FL	FLOW LINE
PC	POINT OF CURVATURE
PT	POINT OF TANGENT
SWK	SIDEWALK
TBC	TOP BACK OF CURB

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COLOR CODE

APWA TEMPORARY MARKING STANDARD

WHITE	Proposed Excavation
PINK	Temporary Survey Markings
RED	Electric Power Lines, Cables, Conduit and Lighting Cables
YELLOW	Gas, Oil, Steam, Petroleum, or Gaseous Materials
ORANGE	Communications, Alarm or Signal Lines, Cables or Conduit
BLUE	Potable Water
PURPLE	Reclaimed Water, Irrigation and Slurry Lines
GREEN	Sewer and Drain Lines

WATSON ENGINEERING COMPANY, INC.

472 N 2150 W, Suite 7
Cedar City, UT 84721

Tel. (435) 586-3004

www.wecinc.com

SITE GRADING PLAN

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

PROFESSIONAL ENGINEER — Jan. 7, 2026 — No. 5049564 — TIM T. WATSON — STATE OF UTAH

DRAWN BY:
C.A. SWASEY

CHECKED BY:
D. T. BROWN

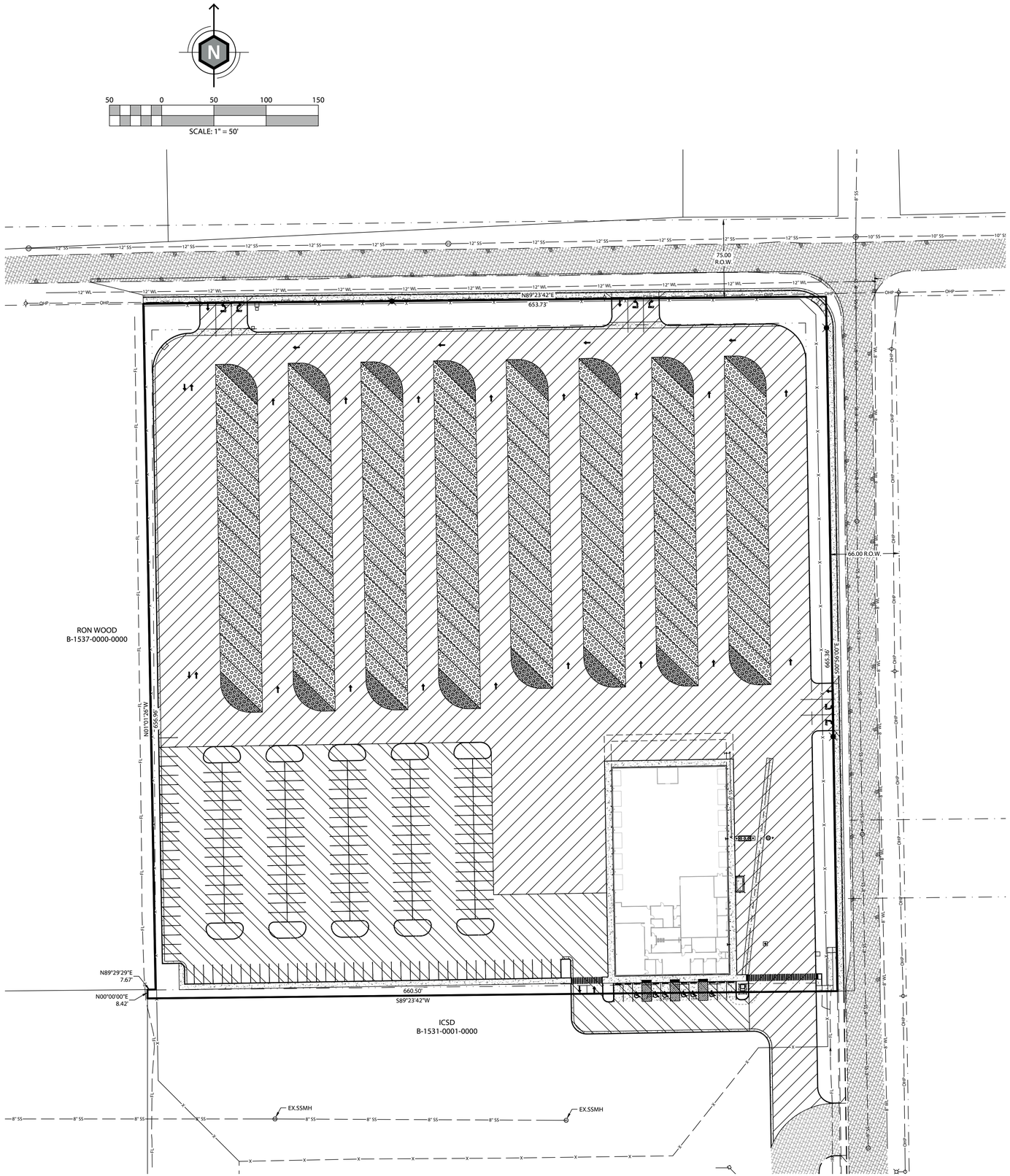
DATE:
January 7, 2026

SCALE:
1:50

WATSON PROJECT No.:
25-7745

FILE:
ICSD_BUSGARAGE - CDS.DWG

sheet C3



ON-SITE BUS TRAVEL PAVEMENT SECTION
SEE DETAIL 101 SHEET CD1. (192,951 SQFT.)

ON-SITE BUS PARKING PAVEMENT SECTION
SEE DETAIL 112 SHEET CD1. (100,026 SQFT.)

ON-SITE TRUCK PAVEMENT SECTION
SEE DETAIL 104 SHEET CD1. (5560 SQFT.)

LEGEND

- PROPERTY LINE
- EXISTING RIGHT-OF-WAY (R.O.W.)
- EXISTING R.O.W. CENTERLINE
- EXISTING FENCE LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING 30" CURB & GUTTER
- EXISTING SEWER LINE (SIZE SPECIFIED)
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- NEW WATER LATERAL
- NEW WATER LINE
- NEW COMMUNICATIONS LINE
- NEW ASPHALT PAVEMENT
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- PROPOSED FIRE HYDRANT

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GREEN	Sewer and Drain Lines

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ON-SITE PAVEMENT SECTIONS

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

DRAWN BY:
C.A. SWASEY

CHECKED BY:
D. T. BROWN

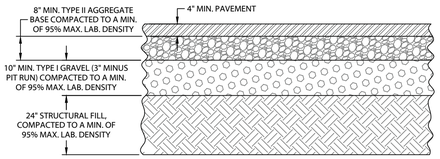
DATE:
January 7, 2026

SCALE:
1:50

WATSON PROJECT No.:
25-7745

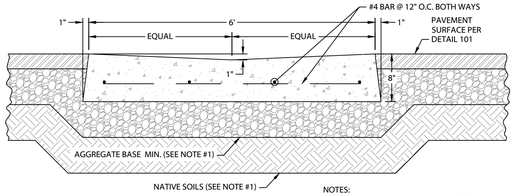
FILE:
ICSD_BUSGARAGE - CDS.DWG

sheet
C4



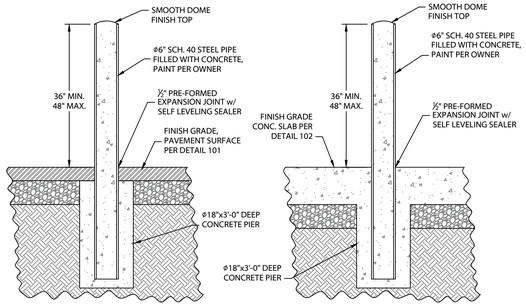
NOTES:
1. PAVEMENT SECTION PER SOILS REPORT, SEE SOILS REPORT FOR ADDITIONAL INFORMATION.

101 BUS TRAVEL & DRIVE WAY PAVEMENT SECTION DETAIL
SCALE:N.T.S.



NOTES:
1. REFER TO DETAIL 103, SHEET CD1 (CONCRETE SLAB SECTION DETAIL) FOR COMPACTION & MATERIAL DEPTH REQUIREMENTS

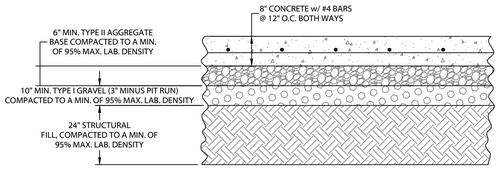
106 VALLEY GUTTER DETAIL
SCALE:N.T.S.



110 BOLLARD DETAIL
SCALE:N.T.S.

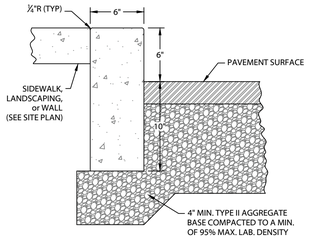
GENERAL CONSTRUCTION NOTES

1. CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. ALL DIMENSIONS SHALL BE READ OR CALCULATED. IF DISCREPANCIES ARISE, CONTACT THE ENGINEER OR OWNER FOR CLARIFICATION.
3. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE BASIS OF DESIGN AND ANY STATE OR LOCAL CODES, INCLUDING AMENDMENTS, AND ALL MANUFACTURES RECOMMENDATIONS.
4. ALL INSPECTIONS SHALL BE PERFORMED BY THE LOCAL BUILDING DEPARTMENTS. ANY SITE OBSERVATION BY THE ENGINEER AND/OR ENGINEER REPRESENTATIVE SHALL NOT COMPRISE OF AN INSPECTION.
5. ALL PREFABRICATED STRUCTURAL ITEMS, SUCH AS ROOF AND FLOOR TRUSSES, SHALL BE PROVIDED BY OTHERS WITH THE NECESSARY SIGNATURES AND STAMPS.
6. THE CONTRACTOR IS REQUIRED TO PROVIDE A SAFE WORKING ENVIRONMENT ON THE JOB SITE AS WELL AS THE AREA ADJACENT TO THE SITE.
7. ENGINEER OF RECORD HAS NOT REVIEWED THE PRE-ENGINEERED MANUFACTURED TRUSS LAYOUT AND CALCULATIONS FOR THIS PROJECT PRIOR TO BUILDING CONSTRUCTION.
8. COORDINATES SHOWN HEREON ARE ON THE CEDAR CITY CONTROL NETWORK USING THE CITY'S GPS BASE STATION AND CALIBRATION.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY READ AND REVIEW THE WATSON ENGINEERING GEOTECHNICAL INVESTIGATION SOILS REPORT AND ALL REVISIONS AND ADDENDUMS (WATSON PROJECT #25-7745) FOR THIS PROJECT PRIOR TO STARTING SITE WORK.
10. ALL PUBLIC IMPROVEMENTS SHALL BE INSTALLED PER THE CITY ENGINEERING STANDARDS. THE PUBLIC IMPROVEMENTS SHALL MEET THE MINIMUM MATERIALS TESTING REQUIREMENTS, PER THE TESTING SCHEDULE PROVIDED IN THE DETAIL SHEETS OF THIS PLAN SET. IF CITY ENGINEERING STANDARDS DO NOT EXIST, THE ENGINEER OF RECORD SHALL PROVIDE THE STANDARDS AND ALL MATERIAL TESTING REQUIREMENTS.
    10.1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE MATERIALS TESTING FIRM FOR THE QUALITY CONTROL AND SCHEDULING OF TESTS, AND THE COMPLIANCE WITH THE MINIMUM TESTING REQUIREMENTS PER THE TESTING SCHEDULE PROVIDED IN THE DETAIL SHEETS OF THIS PLAN SET.
11. DIMENSIONAL HEIGHTS FOR ALL FOUNDATION STEM WALLS, PIERS AND STEPS SHALL BE VERIFIED ON ARCHITECTURAL PLANS AND/OR STEEL BUILDING PLANS BY CONTRACTOR AND OWNER PRIOR TO CONSTRUCTION.
12. STRUCTURAL FOUNDATION PLAN IS TO BE USED IN CONJUNCTION WITH THE ASSOCIATED ARCHITECTURAL AND/OR STEEL BUILDING PLANS. CONTRACTOR TO REVIEW ALL BUILDING PLANS PRIOR TO CONSTRUCTION. IF DISCREPANCIES ARISE BETWEEN PLANS, CONTACT THE ASSOCIATED PLAN PROVIDERS FOR CLARIFICATION.
13. STEEL COLUMN ELEVATIONS MAY VARY. CONTRACTOR AND OWNER TO VERIFY COLUMN ELEVATIONS ON STEEL BUILDING PLANS PRIOR TO CONSTRUCTION.
14. ALL CONCRETE SHALL BE 4000 PSI ANDSHALL HAVE 6% AIR-ENTRAINMENT.
15. ALL CONCRETE SHALL BE PROTECTED DURING CURING FROM DAMAGE OR STRENGTH REDUCTION DUE TO HOT OR COLD WEATHER CONDITIONS IN ACCORDANCE WITH ACI 318 SECTION 305 AND 318 SECTION 306, RESPECTIVELY.
16. ALL CONCRETE MATERIALS AND ALL REINFORCEMENT, FORMS, FILLERS, AND GROUND SHALL BE FREE FROM FROST PRIOR TO PLACEMENT OF CONCRETE.
17. FROZEN CONCRETE MATERIALS AND MATERIALS CONTAINING ICE SHALL NOT BE USED.
18. AT THE TIME OF CONCRETE PLACEMENT ALL REINFORCEMENT SHALL BE FREE FROM MUD, OIL, OR OTHER NONMETALLIC COATINGS THAT DECREASE BOND. (ACI 318 SECTION 7.4)

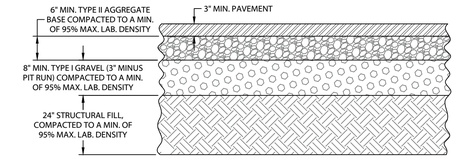


NOTES:
1. PAVEMENT SECTION PER SOILS REPORT, SEE SOILS REPORT FOR ADDITIONAL INFORMATION.

102 CONCRETE PAVEMENT SECTION DETAIL
SCALE:N.T.S.

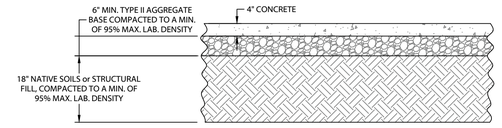


107 6" 'A' CURB DETAIL
SCALE:N.T.S.



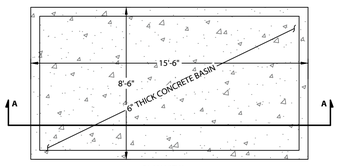
NOTES:
1. PAVEMENT SECTION PER SOILS REPORT, SEE SOILS REPORT FOR ADDITIONAL INFORMATION.

111 RIGHT-OF-WAY PAVEMENT SECTION DETAIL
SCALE:N.T.S.

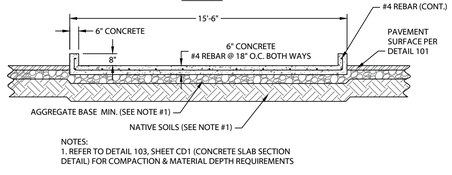


NOTES:
1. PAVEMENT SECTION PER SOILS REPORT, SEE SOILS REPORT FOR ADDITIONAL INFORMATION.

103 CONCRETE SIDEWALK & SLAB SECTION
SCALE:N.T.S.



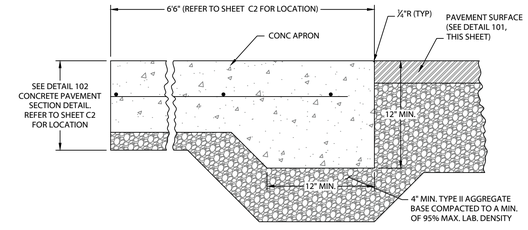
PLAN VIEW



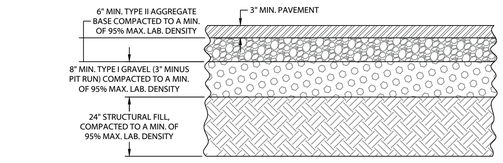
NOTES:
1. REFER TO DETAIL 103, SHEET CD1 (CONCRETE SLAB SECTION DETAIL) FOR COMPACTION & MATERIAL DEPTH REQUIREMENTS

SECTION 'A-A'

108 CONCRETE CONTAINMENT POND DETAIL
SCALE:N.T.S.

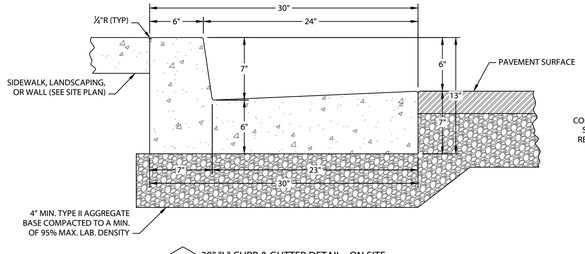


113 THICKENED EDGE CONCRETE PAVEMENT DETAIL
SCALE:N.T.S.

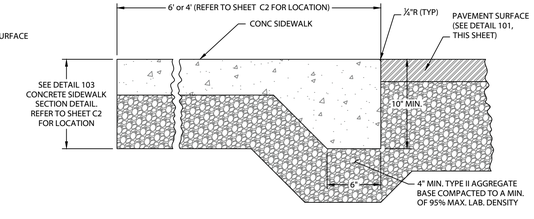


NOTES:
1. PAVEMENT SECTION PER SOILS REPORT, SEE SOILS REPORT FOR ADDITIONAL INFORMATION.

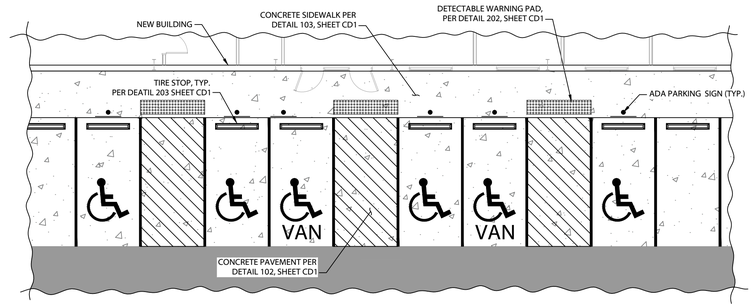
104 PARKING AREA & LIGHT TRAFFIC DRIVE WAY PAVEMENT SECTION DETAIL
SCALE:N.T.S.



105 30" "L" CURB & GUTTER DETAIL - ON SITE
SCALE:N.T.S.

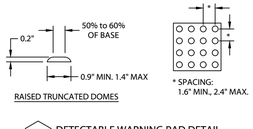


109 THICKENED EDGE CONCRETE SIDEWALK DETAIL
SCALE:N.T.S.



DETAIL NOTES:
1. REFER TO SHEET C2 FOR LOCATION AND ORIENTATION.
2. REFER TO SHEET C3 FOR GRADING INFORMATION.

201 ADA PARKING AREA DETAIL
SCALE:N.T.S.



202 DETECTABLE WARNING PAD DETAIL
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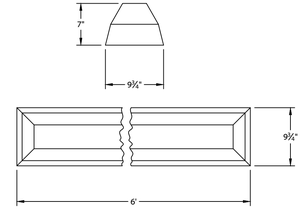


203 6' CONCRETE TIRE STOP
SCALE:N.T.S.

WATSON ENGINEERING COMPANY, INC.

472 N 2150 W, Suite 7
Cedar City, UT 84721

Tel. (435) 586-3004

www.wecinc.com

CIVIL DETAIL SHEET 1

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

PROFESSIONAL ENGINEER
Jan. 7, 2026
No. 5049584
TIM D. BROWN
STATE OF UTAH

DRAWN BY:
C.A. SWASEY

CHECKED BY:
D. T. BROWN

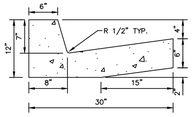
DATE:
January 7, 2026

SCALE:
N.T.S.

WATSON PROJECT No.:
25-7745

FILE:
ICSD_BUSGARAGE - CDS.DWG

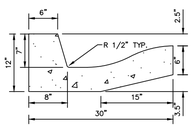
sheet CD1



30" CURB & GUTTER

0.57 YD.^{3}/10 LINEAR FT.

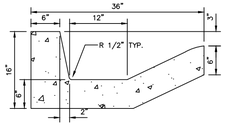
TYPE A



30" IRRIGATION C&G

0.57 YD.^{3}/10 LINEAR FT.

TYPE B



36" CURB & GUTTER

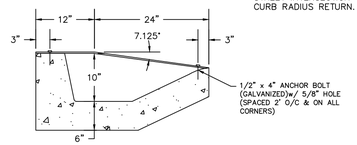
0.81 YD.^{3}/10 LINEAR FT.

TYPE C

NOTE:

ALL CURB AND GUTTER TYPES SHALL HAVE:

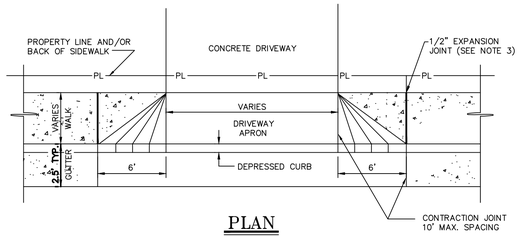
1. CONTRACTION JOINTS EVERY 10' O.C. 1/2" DEEP.
2. EXPANSION JOINTS AT THE P.C. AND P.T. OF A STREET INTERSECTION CURB RADIUS RETURN.



COVERED DRIVE OR SIDEWALK ACCESS RAMP*

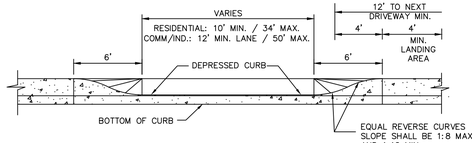
USING 1/2" LARGE PATTERN INLAND 4-WAY PLATE (GALVANIZED PAINTED OR HOT DIPPED) LENGTHS TO BE SAME AS DRIVEWAY OR SIDEWALK WIDTHS

* USE ONLY WHEN APPROVED BY THE CITY ENGINEER.



PLAN

N.T.S.

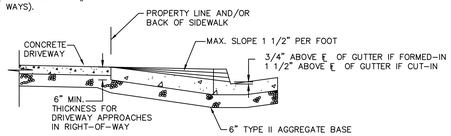


ELEVATION

N.T.S.

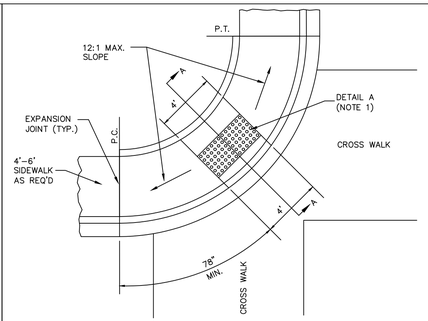
NOTES:

1. #4 BARS @ 16" O.C. BOTH WAYS REQ'D.
2. DRIVEWAY CUTS IN EXISTING CURBS SHALL BE SAW CUT TO DIMENSIONS SHOWN, BREAKING–OFF OF CURB BACKS WILL NOT BE PERMITTED.
3. 40' EXPANSION JOINT SPACING IN SIDEWALKS TO CONTINUE THROUGH DRIVEWAYS.
4. ALL CONCRETE TO BE CLASS B (4000 PSI).
5. SIDEWALKS AT DRIVEWAY APPROACHES BEHIND A TYPE D LOW PROFILE CURB MUST BE 6" THICK (REINFORCED WITH #4 BARS @ 16" O.C. BOTH WAYS).



SECTION

N.T.S.

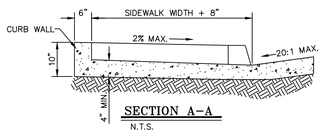


PLAN

N.T.S.

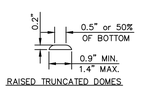
NOTES:

1. DETECTABLE WARNING CAST–IN–PLACE SYSTEM WITH TRUNCATED DOMES BY AMOR–TILE O.A.E. 24" x 48" SIZE, BRICK RED COLOR O.A.E.
2. WHEELCHAIR RAMPS SHALL BE LOCATED AT THE MIDPOINT OF CURB RADIUS UNLESS OTHERWISE INDICATED ON PLAN.
3. RAMPS SHALL BE CONSTRUCTED WITH A ROUGH BROOM FINISH TRANSVERSE TO THE SLOPE.
4. ALL CONCRETE TO BE CLASS B (4000 PSI).
5. BACK OF WALK AND CURB WALL TO BE 1 INCH ABOVE TOP BACK OF CURB AT P.C. AND P.T.
6. UDOT STANDARD DRAWING PA 1 (LATEST VERSION) CAN BE SUBSTITUTED FOR THIS DETAIL. BRICK RED COLOR TILE IS STILL REQUIRED.



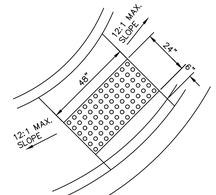
SECTION A–A

N.T.S.



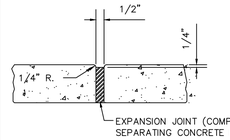
RAISED TRUNCATED DOMES

* SPACING
1.6" MIN.
2.4" MAX.



DETAIL A

N.T.S.

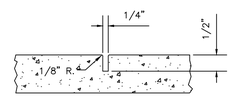


EXPANSION JOINT

N.T.S.

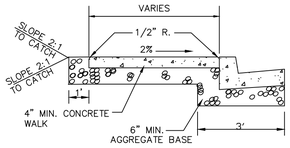
NOTE:

1. ON ALL CURB RETURNS EXPANSION JOINTS SHALL BE PLACED AT P.C. AND P.T. OF THE SIDEWALK.
2. ANY REPLACED SECTIONS OF SIDEWALK SHALL HAVE AN EXPANSION JOINT INSTALLED TO MAINTAIN THE 40' MAX. SPACING.
3. PROVIDE 5'x5' PASSING SPACES AT 200' MAX. INTERVALS WHERE SIDEWALK WIDTH IS LESS THAN 5'. DRIVEWAYS & OTHER PAVED AREAS MAY BE USED AS A PASSING SPACE WHERE A MINIMUM 5' WIDE AREA IS PROVIDED, & 2% CROSS–SLOPE REQUIREMENT IS MET.
4. THE 5'x5' PASSING SPACE IS REQUIRED IN ALL ZONES WHERE SIDEWALK IS LOCATED.
5. WHERE SIDEWALKS CROSS DRIVEWAY APPROACHES BEHIND A TYPE D CURB & GUTTER, MINIMUM SIDEWALK THICKNESS SHALL BE 6" THICK REINFORCED WITH #4 BARS @ 16" O.C. BOTH WAYS.



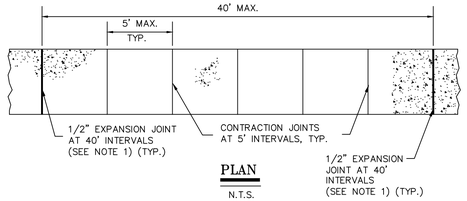
CONTRACTION JOINT

N.T.S.



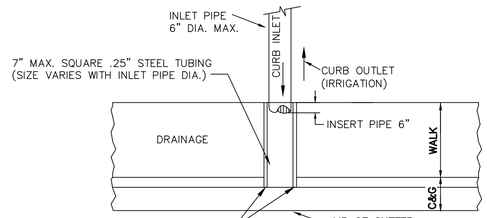
TYPICAL SECTION

N.T.S.



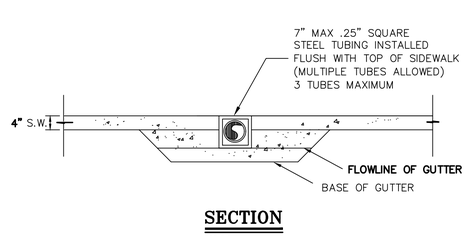
PLAN

N.T.S.



PLAN

N.T.S.



SECTION

N.T.S.

NOTE:

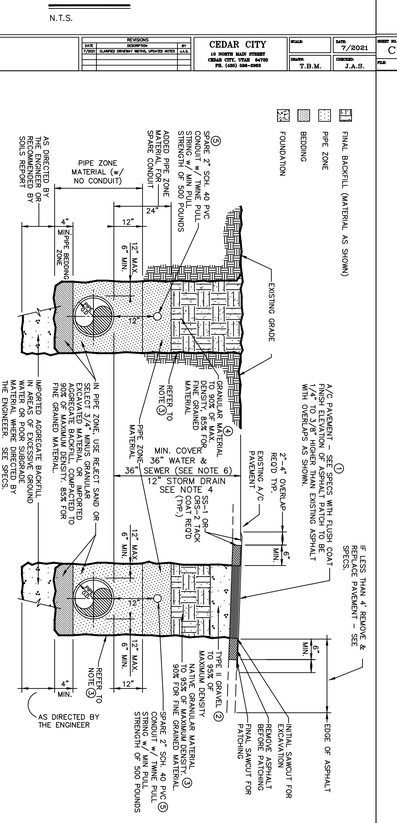
ALL EXPOSED METAL PARTS SHALL BE A–36 HOT DIPPED GALVANIZED OR PAINTED AND ALL GALVANIZING DAMAGED BY FABRICATION OR INSTALLATION SHALL RECEIVE TWO COATS OF GALVANIZED PAINT (PAINT TO BE RUSTOLEUM GALVANZING COMPOUND SPRAY OR EQUAL)

TYPICAL TRENCH DETAILS

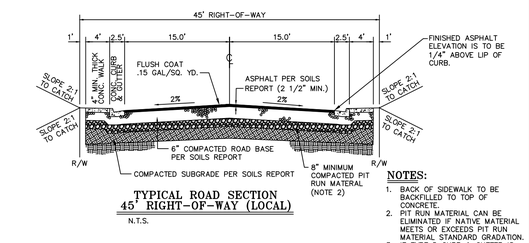
N.T.S.

NOTE:

1. THIS PLATE APPLIES TO THE INSTALLATION OF ALL SERVICE LATERALS. TRENCH WIDTH MINIMUMS DO NOT APPLY TO MAINS.
2. IF PROFILE DRAWING OF THE PIPE IS PROVIDED, THE COVER SHALL BE AS SHOWN ON PROFILE SHEET.
3. TRENCH SIDE SLOPES AND/OR SHORING SHALL COMPLY w/ OSHA STANDARDS.
4. 2" SPARE CONDUIT IS ONLY REQUIRED ON CITY CAPITAL PROJECTS. 2" SPARE CONDUIT TERMINATION SHALL BE SAME AS 2" PVC CONDUIT.
5. MINIMUM DEPTH OF SEWER MANHOLES IS 4'-0" OF COVER OVER TOP OF PIPE.
6. PVC WATERLINES AND POLY SERVICE LATERALS REQUIRE 6 INCHES OF SAND BEDDING AND SAND WITHIN THE PIPE ZONE. INSTALLATION SHALL COMPLY WITH APPLICABLE BEDDING AND PIPE ZONE IF THE NATIVE MATERIAL IS FINE–GRAINED AND APPROVED BY THE GEOTECHNICAL ENGINEER.



TYPICAL ROAD SECTIONS w/o TRAIL

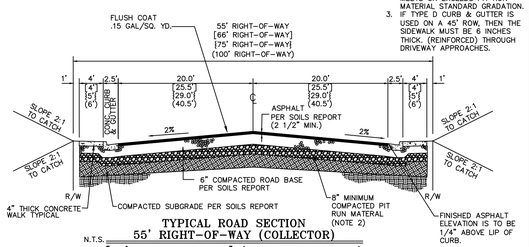


TYPICAL ROAD SECTION 45' RIGHT–OF–WAY (LOCAL)

N.T.S.

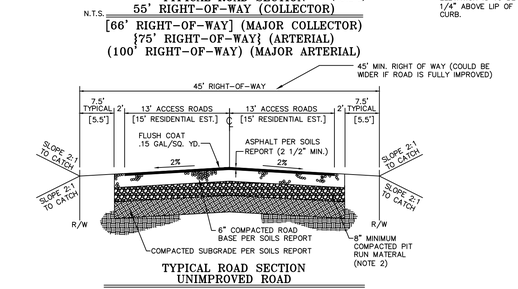
NOTES:

1. BACK OF SIDEWALK TO BE BACKFILLED TO TOP OF CONCRETE.
2. PIT RUN MATERIAL CAN BE ELIMINATED IF NATIVE MATERIAL MEETS OR EXCEEDS PIT RUN MATERIAL STANDARD GRADATION.
3. IF TYPE D CURB & GUTTER IS USED ON A 45' ROW, THEN THE SIDEWALK MUST BE 6 INCHES THICK. (REINFORCED) THROUGH DRIVEWAY APPROACHES.



TYPICAL ROAD SECTION 55' RIGHT–OF–WAY (COLLECTOR) [66' RIGHT–OF–WAY] (MAJOR COLLECTOR) {75' RIGHT–OF–WAY} (ARTERIAL) (100' RIGHT–OF–WAY) (MAJOR ARTERIAL)

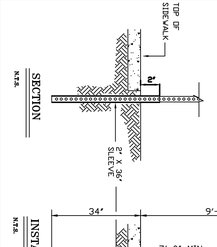
N.T.S.



TYPICAL ROAD SECTION UNIMPROVED ROAD

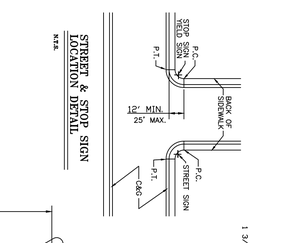
N.T.S.

CONCRETE SIDEWALK



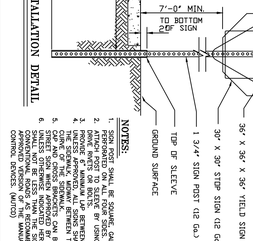
SECTION

N.T.S.



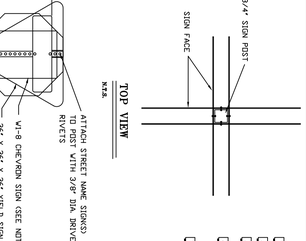
STREET & STOP SIGN LOCATION DETAIL

N.T.S.



INSTALLATION DETAIL

N.T.S.



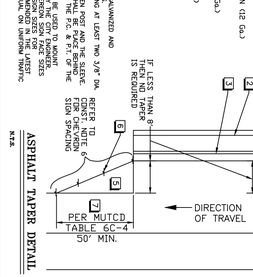
TOP VIEW

N.T.S.

NOTES:

1. SIGN POST SHALL BE SQUARE, GALVANIZED AND PAINTED BRICK RED COLOR.
2. ATTACH POST TO SLEEVE BY USING AT LEAST TWO 3/8" DIA. BOLTS.
3. PROVIDE AT MINIMUM LIP BETWEEN POST AND THE SLEEVE AND CROSS BRACKETS CAN BE USED TO MOUNT SIGNS ON OPPOSITE SIDES OF THE SLEEVE.
4. THE SIDEWALK MIDWAY BETWEEN THE P.C. & P.T. OF THE CURB RADIUS RETURN.
5. SIGN PLACEMENT AND SIGN SIZES SHALL COMPLY WITH CONVENTIONAL ROAD & HIGHWAY SIGNS AS RECOMMENDED IN THE LATEST EDITION OF THE MUTCD MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. (MUTCD)

SIGNS AND ASPHALT TAPERS



ASPHALT TAPER DETAIL

N.T.S.

WATSON ENGINEERING COMPANY, INC.

472 N 2150 W, Suite 7
Cedar City, UT 84721

Tel. (435) 586-3004

www.wecinc.com

IRON COUNTY SCHOOL DISTRICT

CIVIL DETAIL SHEET 2

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

Jan. 7, 2026
No. 5049564
STATE OF UTAH

DRAWN BY: C.A. SWASEY

CHECKED BY: D. T. BROWN

DATE: January 7, 2026

SCALE: N.T.S.

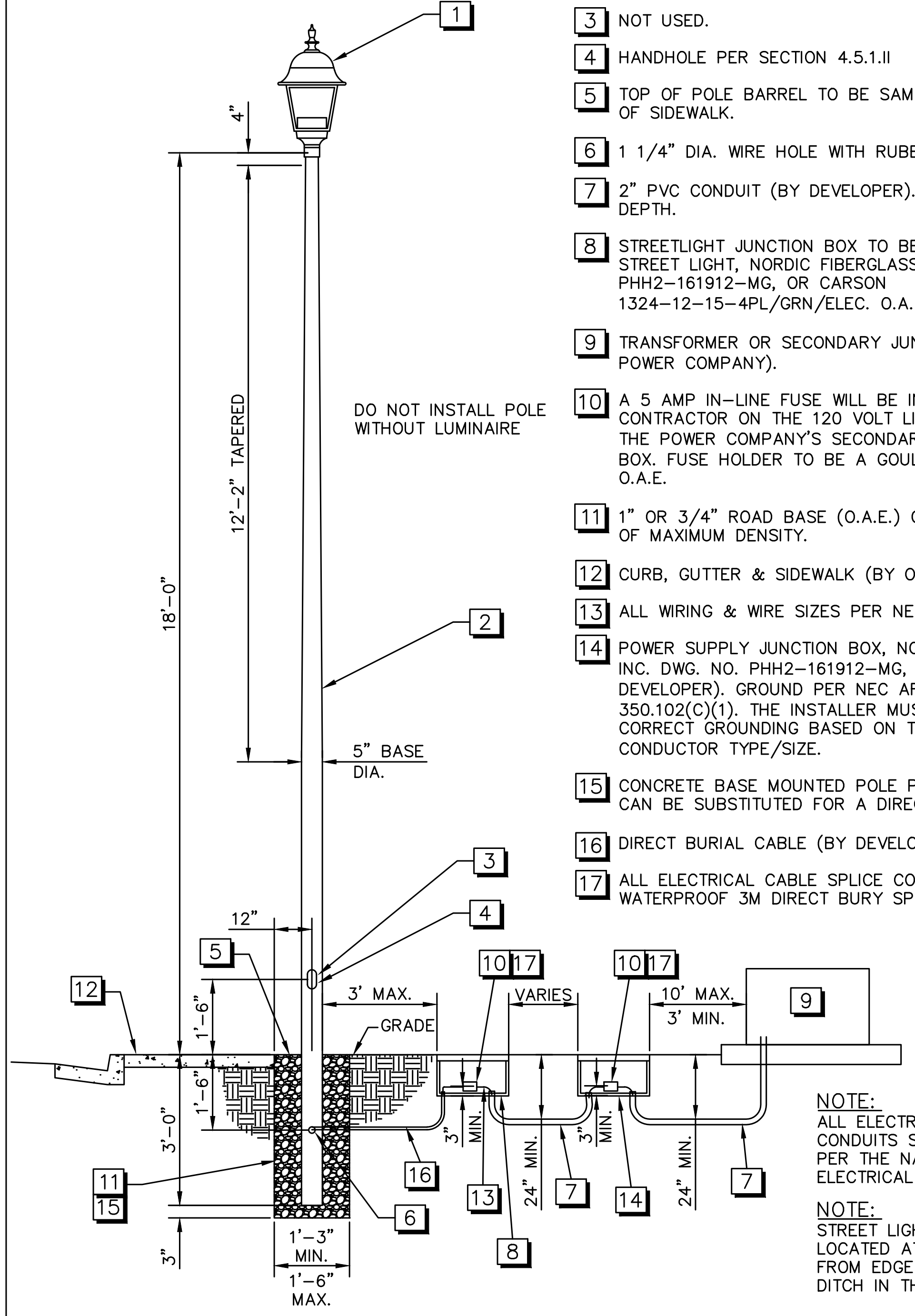
WATSON PROJECT No.: 25-7745

FILE: ICSD_BUSGARAGE - CDS.DWG

Sheet CD2

ALL STREET LIGHT LOCATIONS TO BE COORDINATED WITH POWER COMPANY AND COMPLY WITH SECTION 4.5.2.IV AND TABLE 4.13

NOTE:
THE STREET LIGHT SHALL BE CONNECTED TO THE POWER SYSTEM AND BE IN WORKING ORDER WHEN TURNED OVER TO CEDAR CITY.



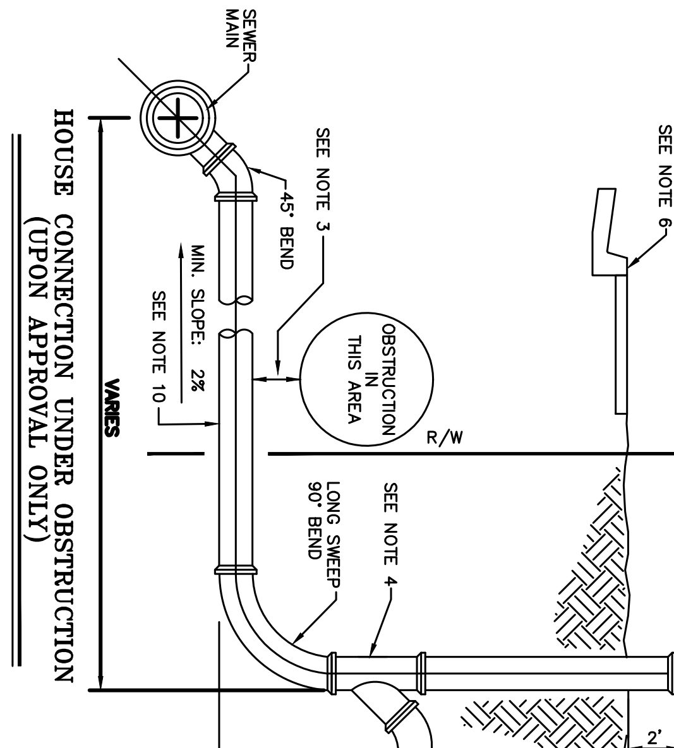
CONSTRUCTION NOTES:

1. LIGHT FIXTURE PER SECTION 4.5.1.I AND TABLE 4.12
2. POLE PER SECTION 4.5.1.II AND TABLE 4.13
3. NOT USED.
4. HANDHOLE PER SECTION 4.5.1.II
5. TOP OF POLE BARREL TO BE SAME ELEVATION AS TOP OF SIDEWALK.
6. 1 1/4" DIA. WIRE HOLE WITH RUBBER GROMMET.
7. 2" PVC CONDUIT (BY DEVELOPER). 24" MIN. BURY DEPTH.
8. STREETLIGHT JUNCTION BOX TO BE PLACED AT EACH STREET LIGHT, NORDIC FIBERGLASS INC. DWG. NO. PHH2-161912-MG, OR CARSON 1324-12-15-4PL/GRN/ELEC. O.A.E. (BY DEVELOPER)
9. TRANSFORMER OR SECONDARY JUNCTION BOX (BY POWER COMPANY).
10. A 5 AMP IN-LINE FUSE WILL BE INSTALLED BY THE CONTRACTOR ON THE 120 VOLT LINE CONNECTING TO THE POWER COMPANY'S SECONDARY POWER IN THE BOX. FUSE HOLDER TO BE A GOULD FEBIIII w/ A FSBI, O.A.E.
11. 1" OR 3/4" ROAD BASE (O.A.E.) COMPACTED TO 95% OF MAXIMUM DENSITY.
12. CURB, GUTTER & SIDEWALK (BY OTHERS)
13. ALL WIRING & WIRE SIZES PER NEC.
14. POWER SUPPLY JUNCTION BOX, NORDIC FIBERGLASS INC. DWG. NO. PHH2-161912-MG, O.A.E. (BY DEVELOPER). GROUND PER NEC ARTICLE 250 & TABLE 350.102(C)(1). THE INSTALLER MUST SUPPLY THE CORRECT GROUNDING BASED ON THE INSTALLED CONDUCTOR TYPE/SIZE.
15. CONCRETE BASE MOUNTED POLE PER DETAIL R-15 CAN BE SUBSTITUTED FOR A DIRECT BURIAL POLE.
16. DIRECT BURIAL CABLE (BY DEVELOPER).
17. ALL ELECTRICAL CABLE SPLICE CONNECTOR SHALL BE WATERPROOF 3M DIRECT BURY SPLICE KITS O.A.E.

NOTE:
ALL ELECTRIC CABLES AND CONDUITS SHALL BE SIZED PER THE NATIONAL ELECTRICAL CODE.

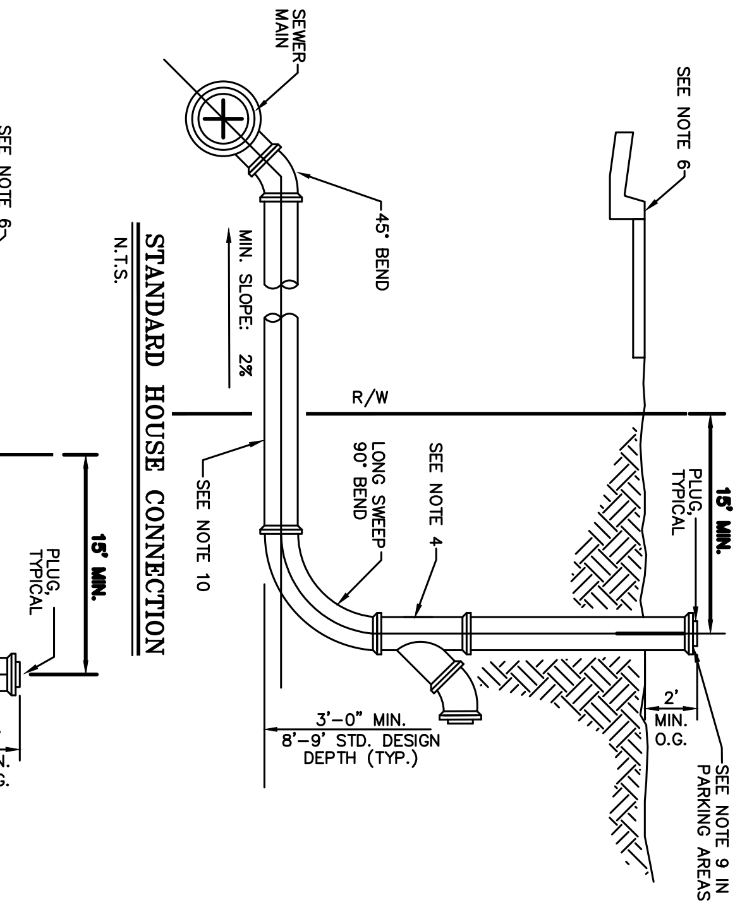
NOTE:
STREET LIGHT SHALL BE LOCATED AT LEAST 3 FEET FROM EDGE OF BORROW DITCH IN THE RE ZONE.

SHEET NO. R14
FILE:
LOCAL STREET LIGHT
REVISIONS — DATE / DESCRIPTION / BY
CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 3/2023
DRAWN: T.B.M.
CHECKED: J.A.S.



HOUSE CONNECTION UNDER OBSTRUCTION (UPON APPROVAL ONLY)

N.T.S.

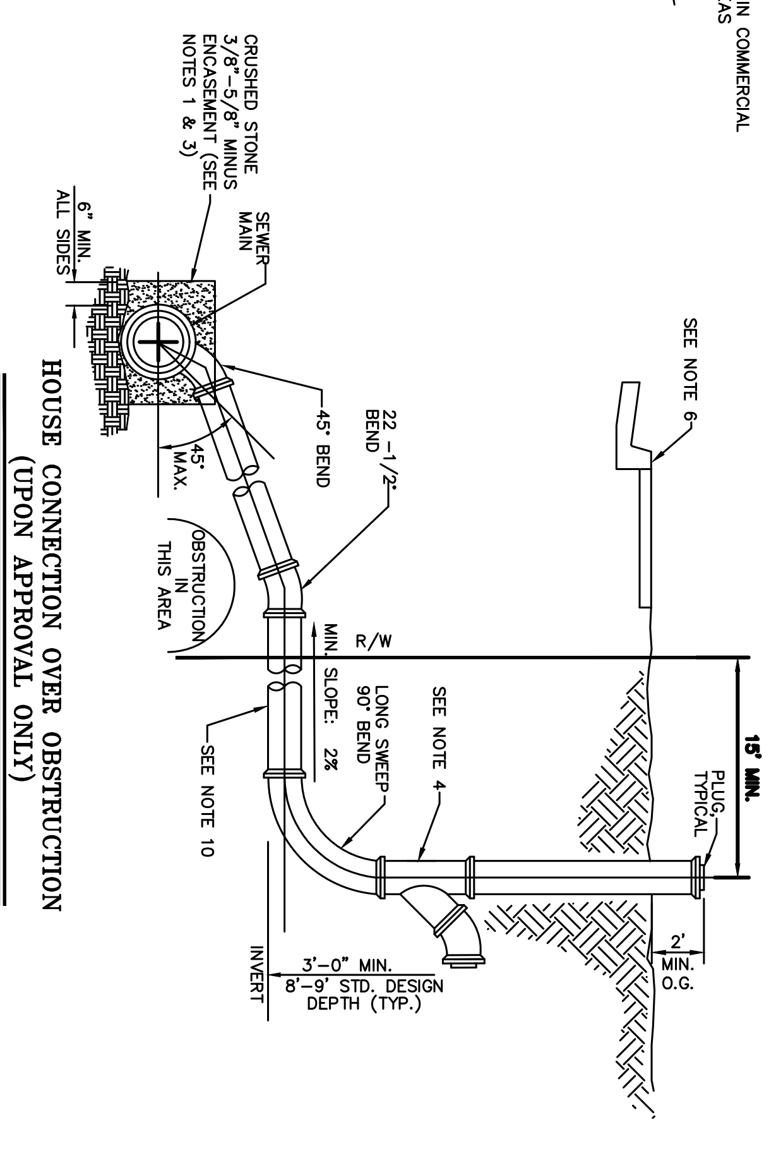


STANDARD HOUSE CONNECTION

N.T.S.

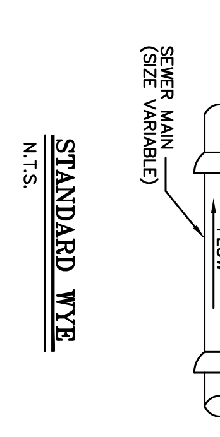
NOTES:

1. ONLY APPROVED INSERTABLE TEES w/ RUBBER GROMMET SEAL OR PVC SADDLE WYES GLUED & STRAPPED TO EXISTING PVC MAINS ALLOWED. INSERTABLE TEES SHALL NOT BE USED IN PIPE LESS THAN 12" DIAMETER. SADDLE WYES CONNECTING TO VITRIFIED CLAY SEWER PIPE MAIN MUST BE ENCASED IN CRUSHED STONE AS SHOWN.
2. ALL SEWER LATERALS TO BE ABS OR PVC 4" OR 6" DIAMETER MATERIAL SDR-35.
3. WHERE CLEARANCE BETWEEN BOTTOM OF OBSTRUCTION AND TOP OF LATERAL IS LESS THAN 12", ENCASE LATERAL IN CRUSHED STONE.
4. 4" OR 6" PVC WYE INSTALLED BY BUILDING PLUMBER AT REQUIRED ELEVATIONS.
5. SEWER LATERALS SHALL NORMALLY BE PLACED 10 FEET INSIDE THE SIDE LOT LINE ON THE SIDE WHERE THE SEWER MAIN IS THE LOWEST. ON TWIN HOME LOTS SEWER LATERAL SHALL BE PLACED 1' ON EACH SIDE OF THE LINE DIVIDING THE HOMES.
6. 4" HIGH LETTER "S" ETCHED IN CONCRETE CURB ABOVE SEWER LATERAL.
7. NO SEWER LATERALS SHALL BE CONNECTED DIRECTLY TO SEWER MANHOLES.
8. WHEN A NEW SEWER LATERAL REPLACES AN EXISTING SEWER LATERAL AT A DIFFERENT LOCATION ON THE SEWER MAIN, THE EXISTING SEWER LATERAL SHALL BE CAPPED AT THE SEWER MAIN.
9. SEWER LATERALS IN COMMERCIAL PARKING LOTS REQUIRE A COLLAR AROUND THE CLEAN-OUT CAP SIMILAR TO WATER VALVE BOX COLLARS PER DETAIL W1.
10. PIPE DIAMETER SHALL NOT BE INCREASED IN AN ATTEMPT TO DECREASE MINIMUM SLOPE.



HOUSE CONNECTION OVER OBSTRUCTION (UPON APPROVAL ONLY)

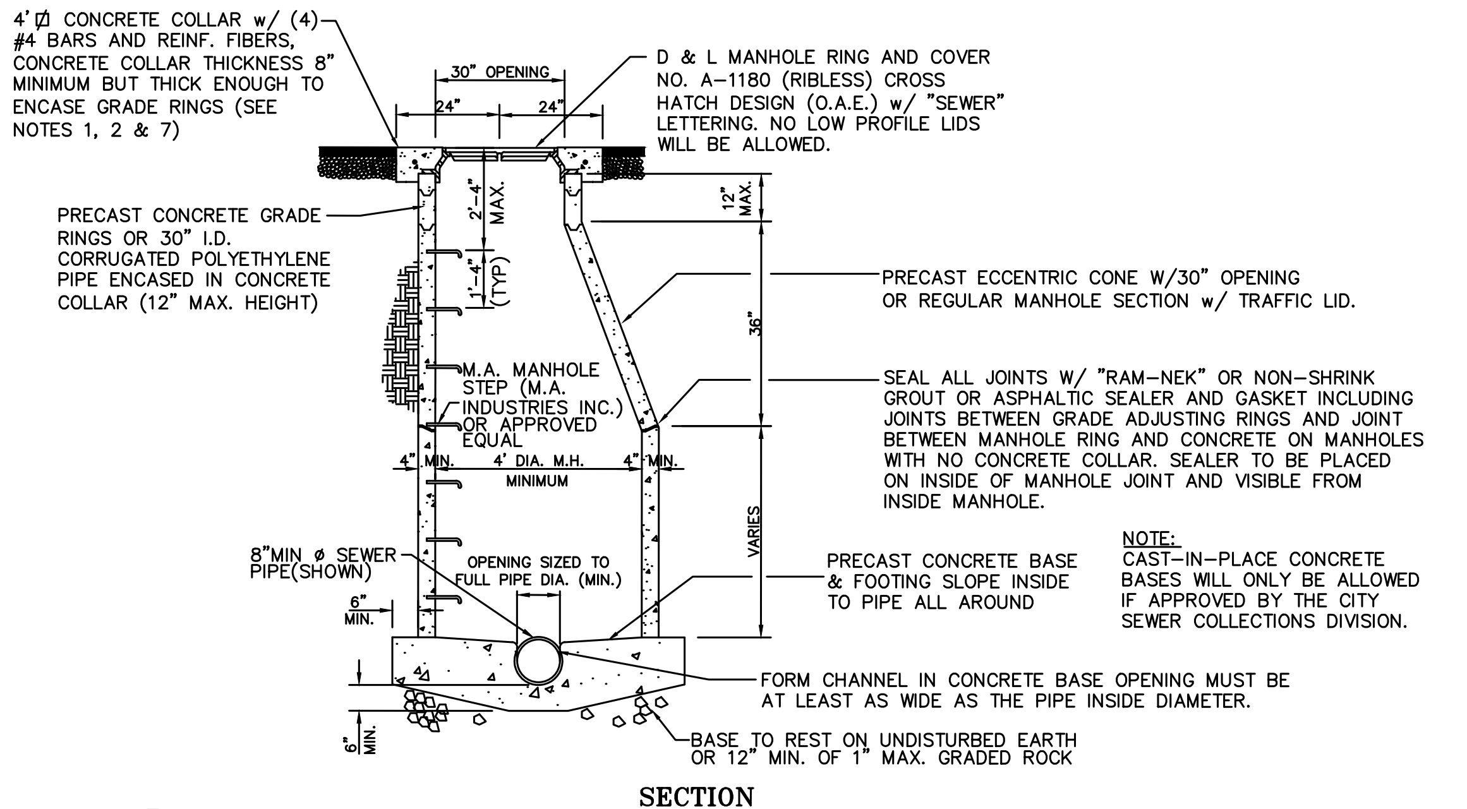
N.T.S.



STANDARD WYE

N.T.S.

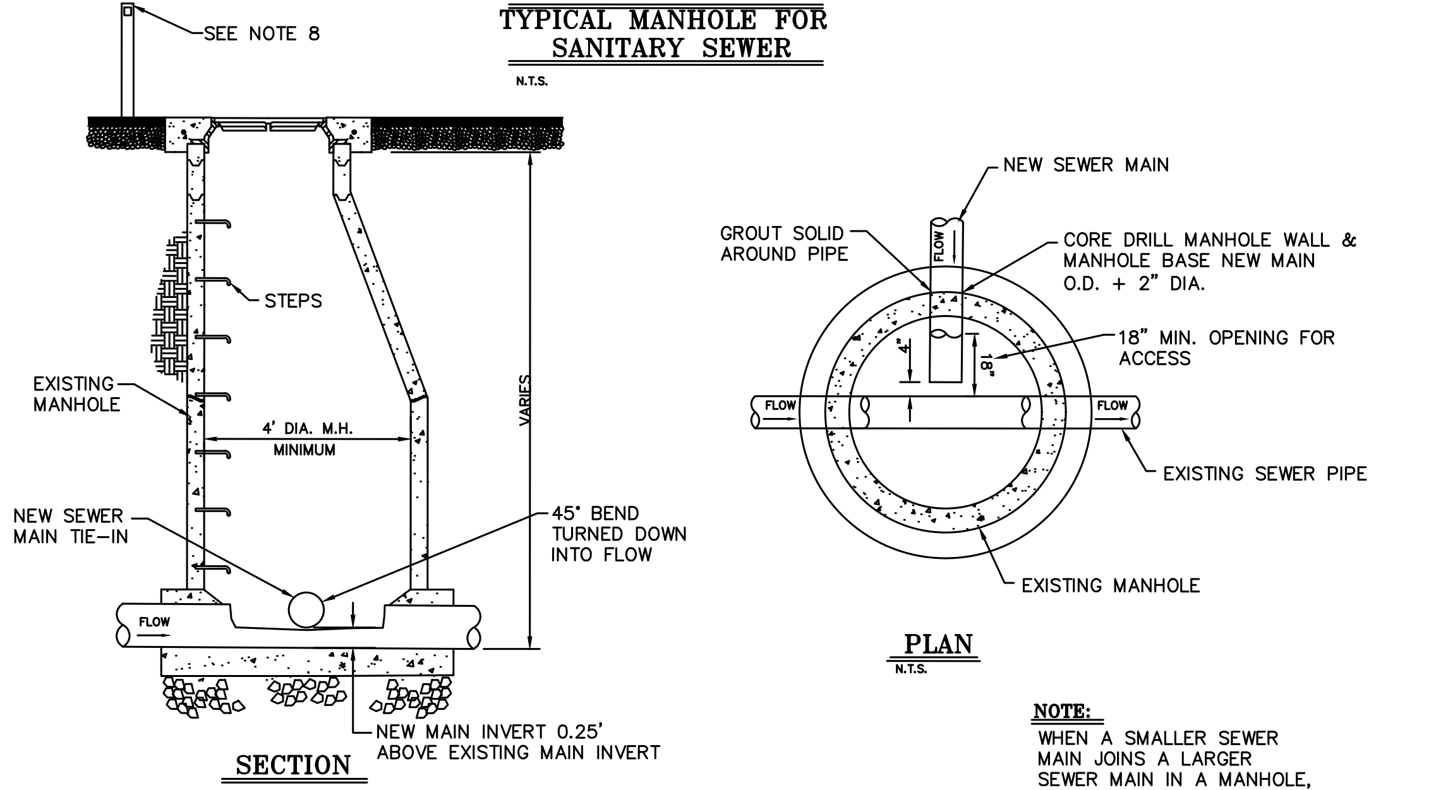
SHEET NO. S1
FILE:
SEWER LATERAL
REVISIONS — DATE / DESCRIPTION / BY
CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 10/2023
DRAWN: T.B.M.
CHECKED: J.A.S.



NOTE:
CAST-IN-PLACE CONCRETE BASES WILL ONLY BE ALLOWED IF APPROVED BY THE CITY SEWER COLLECTIONS DIVISION.

SECTION
TYPICAL MANHOLE FOR SANITARY SEWER

N.T.S.



NOTE:
WHEN A SMALLER SEWER MAIN JOINS A LARGER SEWER MAIN IN A MANHOLE, THE TOP OF PIPE ELEVATIONS SHALL MATCH.

EXISTING SEWER MANHOLE CONNECTION

N.T.S.

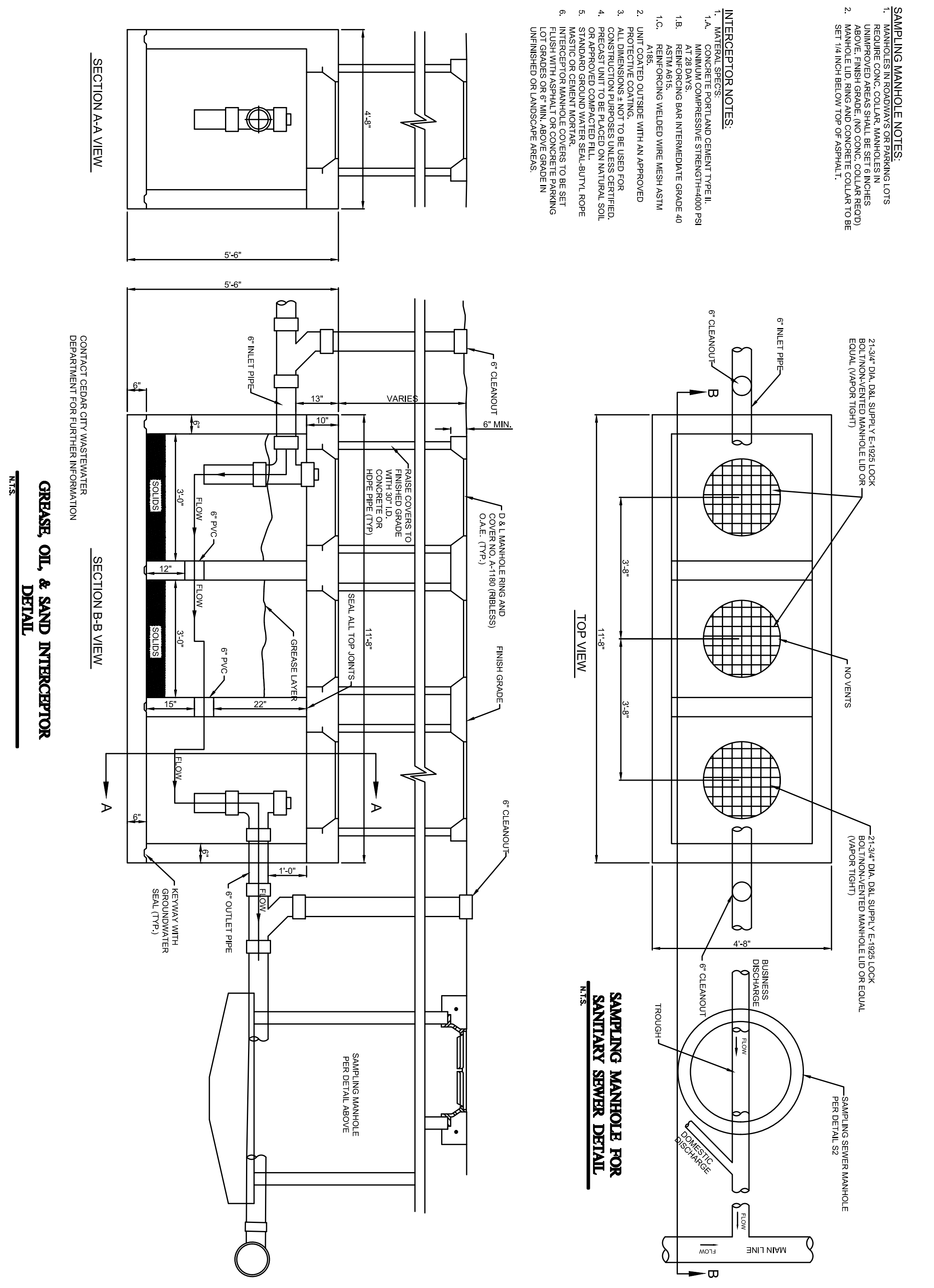
NOTES:

1. MANHOLES IN ROADWAYS REQUIRE CONC. COLLAR. TOP OF MANHOLE CONE IN UNIMPROVED AREAS SHALL BE SET 6 TO 12 INCHES ABOVE FINISH GRADE WITH NO GRADE RINGS. (NO CONC. COLLAR REQ'D)
2. MANHOLE LID, RING AND CONCRETE COLLAR TO BE CENTERED ON MANHOLE OPENING AND SET 1/4 INCH BELOW TOP OF ASPHALT.
3. 5' DIA. MANHOLES REQUIRED FOR ALL SEWER LINES OVER 12" DIA, OVER 12' DEEP MANHOLE OR 3 OR MORE IN COMING LINES.
4. NO SEWER LATERALS SHALL BE INSTALLED IN MANHOLES.
5. OUTLET PIPE INVERT TO BE 0.05 FEET (MINIMUM) LOWER THAN INLET PIPES IN ALL MANHOLES.
6. NO WOOD OR PVC SHIMS WILL BE ALLOWED BETWEEN LID RING AND ADJUSTING RINGS OR MANHOLE.
7. NOT USED.
8. MANHOLES IN UNIMPROVED AREAS REQUIRE AN ORANGE CARSONITE CRM 66 INCH UTILITY MARKER BE PLACED WITHIN 4 FEET OF THE MANHOLE WITH A STICKER INDICATING SEWER MANHOLE.
9. DROP MANHOLES AND ALL OTHER MANHOLES WITH PRESSURE LINE OF ANY SIZE OR GRAVITY LINES 15 INCH DIAMETER AND ABOVE SHALL BE CORROSION RESISTANT, ARMOR ROCK (PRE-CAST), OR SPRAYROQ (FIELD-APPLIED), 125 MILS THICK, O.A.E.
10. THE UPSTREAM AND DOWNSTREAM MANHOLES FROM A PRESSURE LINE TERMINATION ALSO REQUIRE THE CORROSION-RESISTANT ARMOROCK OR SPRAYROQ LINING, OR APPROVED EQUAL.

SHEET NO. S2
FILE:
NEW SEWER MANHOLE & EXISTING CONNECTION

DATE	DESCRIPTION	BY
7/2021	NOTE ADDED ABOUT CAST-IN-PLACE BASES	J.A.S.

CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 10/2023
DRAWN: T.B.M.
CHECKED: J.A.S.



CONTACT CEDAR CITY WASTEWATER DEPARTMENT FOR FURTHER INFORMATION

GREASE, OIL, & SAND INTERCEPTOR DETAIL

N.T.S.

SAMPLING MANHOLE FOR SANITARY SEWER DETAIL

N.T.S.

SAMPLING MANHOLE NOTES:

1. MANHOLES IN ROADWAYS OR PARKING LOTS REQUIRE CONC. COLLAR. MANHOLES IN UNIMPROVED AREAS SHALL BE SET 6 INCHES ABOVE. FINISH GRADE. (NO CONC. COLLAR REQ'D)
2. MANHOLE LID, RING AND CONCRETE COLLAR TO BE SET 1/4 INCH BELOW TOP OF ASPHALT.

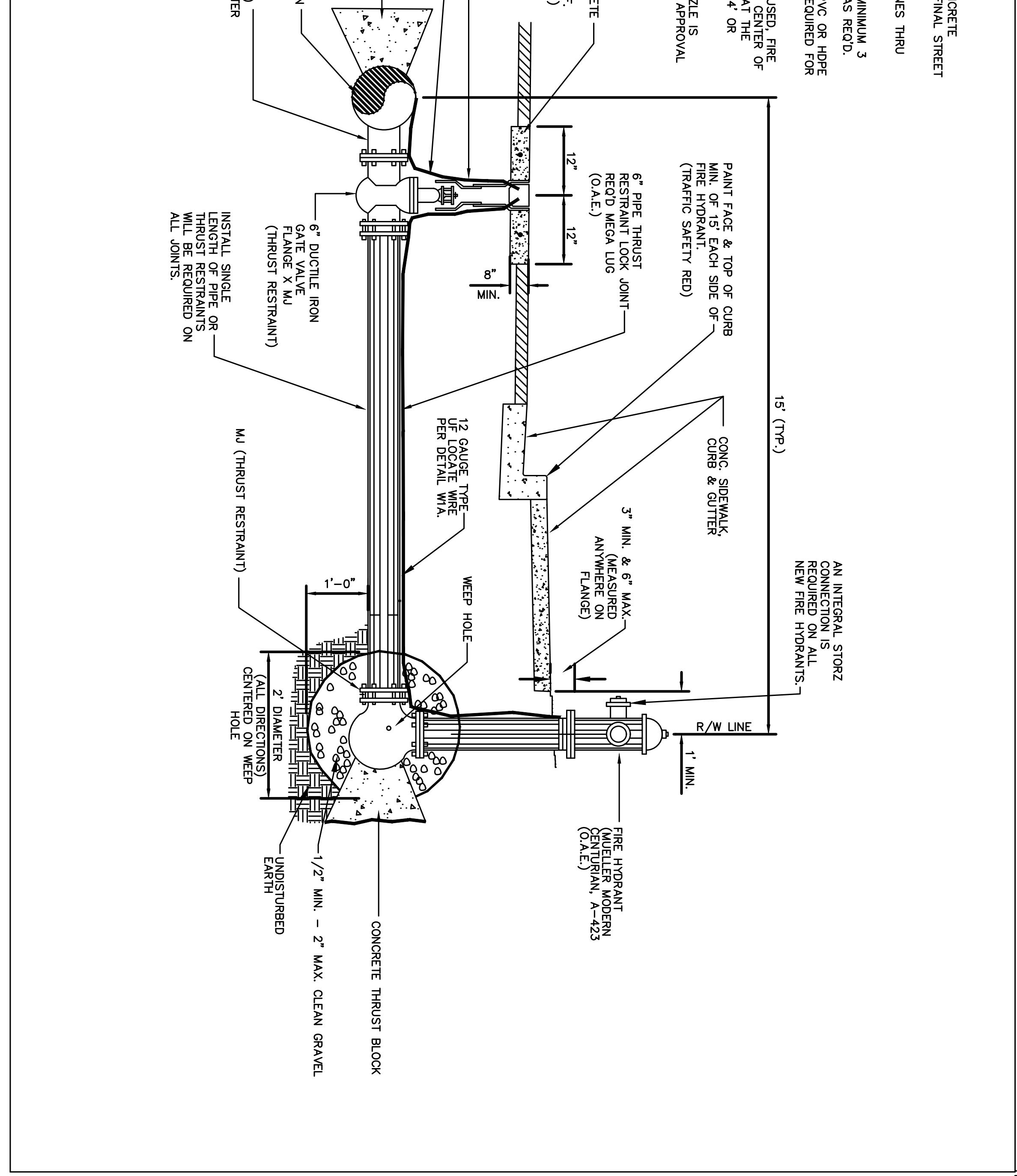
INTERCEPTOR NOTES:

1. MATERIAL SPECS:
   - 1.A. CONCRETE PORTLAND CEMENT TYPE II. MINIMUM COMPRESSIVE STRENGTH=4000 PSI AT 28 DAYS.
   - 1.B. REINFORCING BAR INTERMEDIATE GRADE 40 ASTM A615.
   - 1.C. REINFORCING WELDED WIRE MESH ASTM A185.
2. UNIT COATED OUTSIDE WITH AN APPROVED PROTECTIVE COATING.
3. ALL DIMENSIONS ± NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.
4. PRECAST UNIT TO BE PLACED ON NATURAL SOIL OR APPROVED COMPACTED FILL.
5. STANDARD GROUND WATER SEAL-BUTYL ROPE MASTIC OR CEMENT MORTAR.
6. INTERCEPTOR MANHOLE COVERS TO BE SET FLUSH WITH ASPHALT OR CONCRETE PARKING LOT GRADES OR 6" MIN. ABOVE GRADE IN UNFINISHED OR LANDSCAPE AREAS.

SHEET NO. S4
FILE:
GREASE, OIL, & SAND INTERCEPTOR & SAMPLING MANHOLE FOR SANITARY SEWER
REVISIONS — DATE / DESCRIPTION / BY
CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 7/2021
DRAWN: T.B.M.
CHECKED: J.A.S.

NOTES:

1. TOP OF VALVE BOX AND CONCRETE COLLAR TO BE 1/4" BALOW FINAL STREET GRADE.
2. DO NOT BLOW OFF WATER LINES THRU FIRE HYDRANTS.
3. FIRE HYDRANTS TO HAVE A MINIMUM 3 FOOT BURY w/ EXTENSIONS AS REQ'D.
4. INSTALL TRACER WIRE WITH PVC OR HDPE PIPE. TRACER WIRE IS NOT REQUIRED FOR DUCTILE IRON PIPE.
5. WHERE A PLANTER STRIP IS USED, FIRE HYDRANT MAY BE PLACED IN CENTER OF PLANTER STRIP PROVIDED THAT THE WIDTH OF PLANTER STRIP IS 4' OR GREATER.
6. THE STORZ CONNECTION NOZZLE IS REQUIRED PER CITY COUNCIL APPROVAL IN 2019.

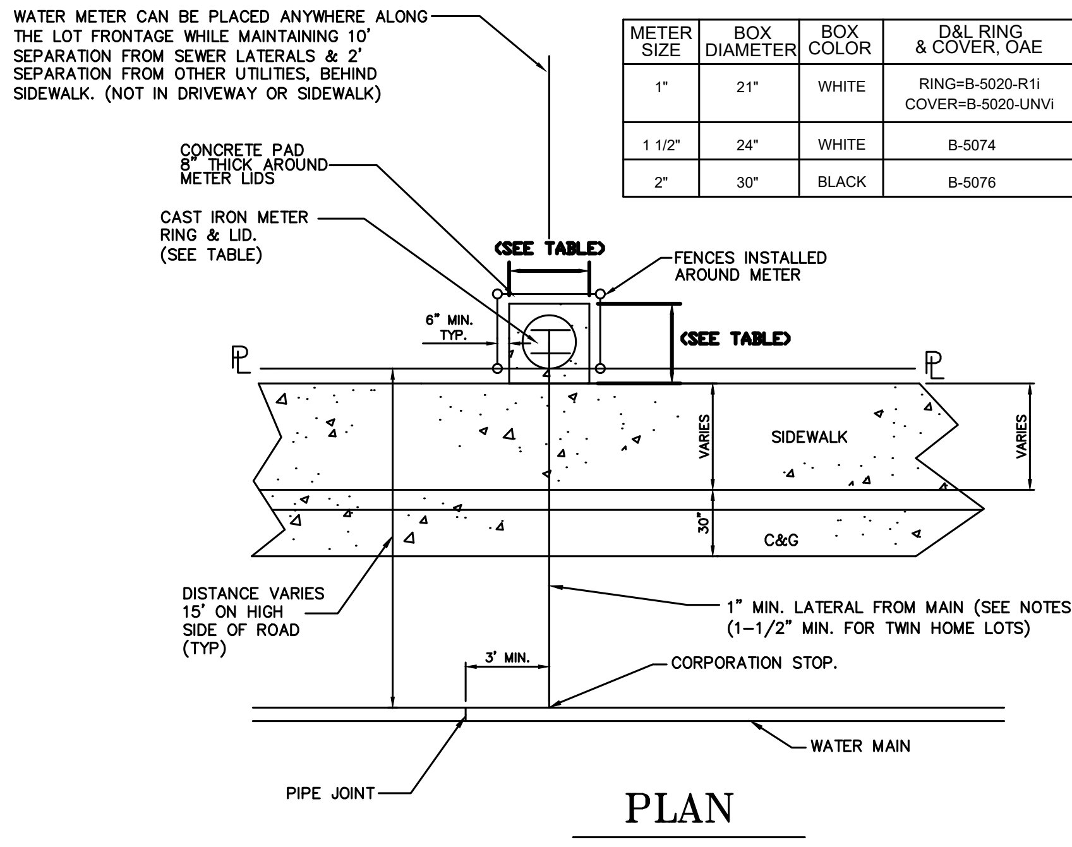


SHEET NO. W2
FILE:
FIRE HYDRANT

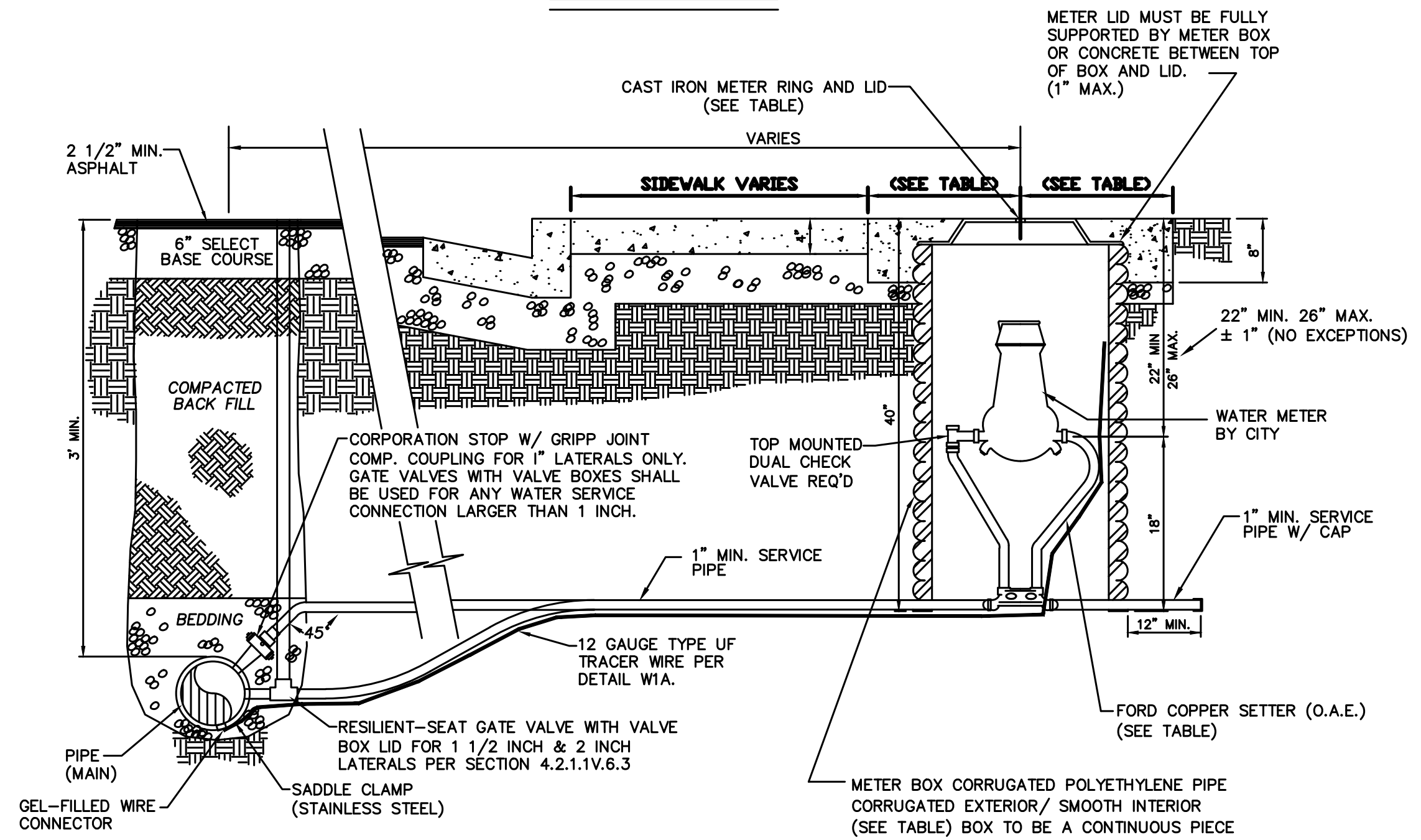
DATE	DESCRIPTION	BY
10/2021	ADDED NOTE 5	J.A.S.
10/2023	ADDED NOTE 6	J.A.S.
8/2024	ADDED HDPE PIPE	K.F.

CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 8/2024
DRAWN: T.B.M.
CHECKED: K.F.

METER SIZE	BOX DIAMETER	BOX COLOR	D&L RING & COVER, OAE	FORD SETTER, OAE	APRON SIZE
1"	21"	WHITE	RING=B-5020-R1i COVER=B-5020-UNVi	VBHC 74-18W-44-44-G or Q	36"X36"
1 1/2"	24"	WHITE	B-5074	VBHH 76-18-44-66-G or Q	36"X36"
2"	30"	BLACK	B-5076	VBHH 77-18-44-77-G or Q	42"X42"



PLAN



SECTION

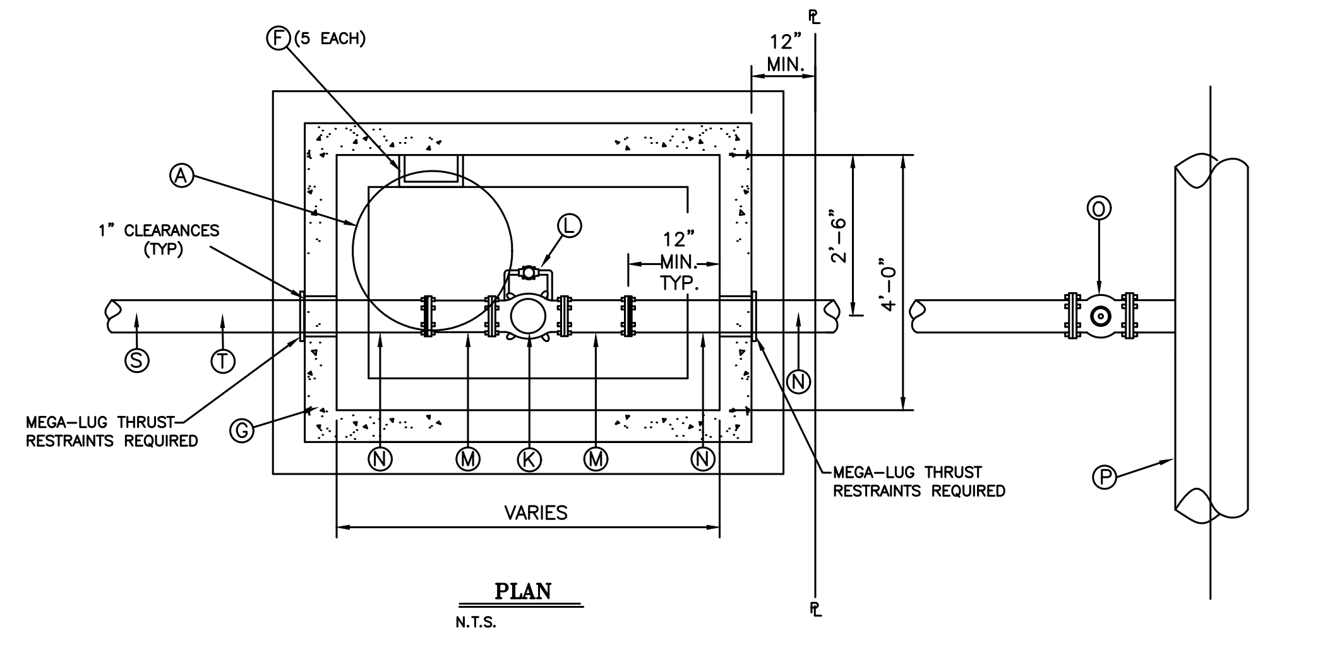
NOTES:

1. 3/4" LATERAL ALLOWED ONLY BY APPROVAL OF THE CITY ENGINEER
2. TWIN HOME LOTS REQUIRE A WATER METER ON EACH SIDE OF THE TWIN HOME DIVIDING LOT LINE. REFER TO THE REQUIRED CLEARANCES CALLED OUT ON THIS DETAIL.
3. ON INDUSTRIAL ZONED ROADS WHERE SIDEWALKS ARE NOT REQUIRED OR INSTALLED THE WATER METERS SHALL BE INSTALLED BEHIND THE CURB & GUTTER.
4. WATER SERVICES w/ GREATER THAN 175 PSI REQUIRE A PRV UP STREAM OF THE METER BOX IN A SEPERATE 18" DIA. METER BOX.
5. TRACER WIRE MUST BE DUCT TAPED OR ZIP TIED TO PIPE AT 15' INTERVALS.
6. TRACER WIRE IS NOT REQUIRED ON COPPER PIPE. TRACER WIRE IS REQUIRED ON POLY SERVICE LATERALS.
7. A STIFFENER IS REQUIRED AT THE LATERAL CONNECTION FOR POLY PIPE.
8. WHERE A PLANTER STRIP IS USED, WATER METER MUST BE LOCATED BEHIND SIDEWALK.

SHEET NO. W5
FILE:
1"-2" WATER METER

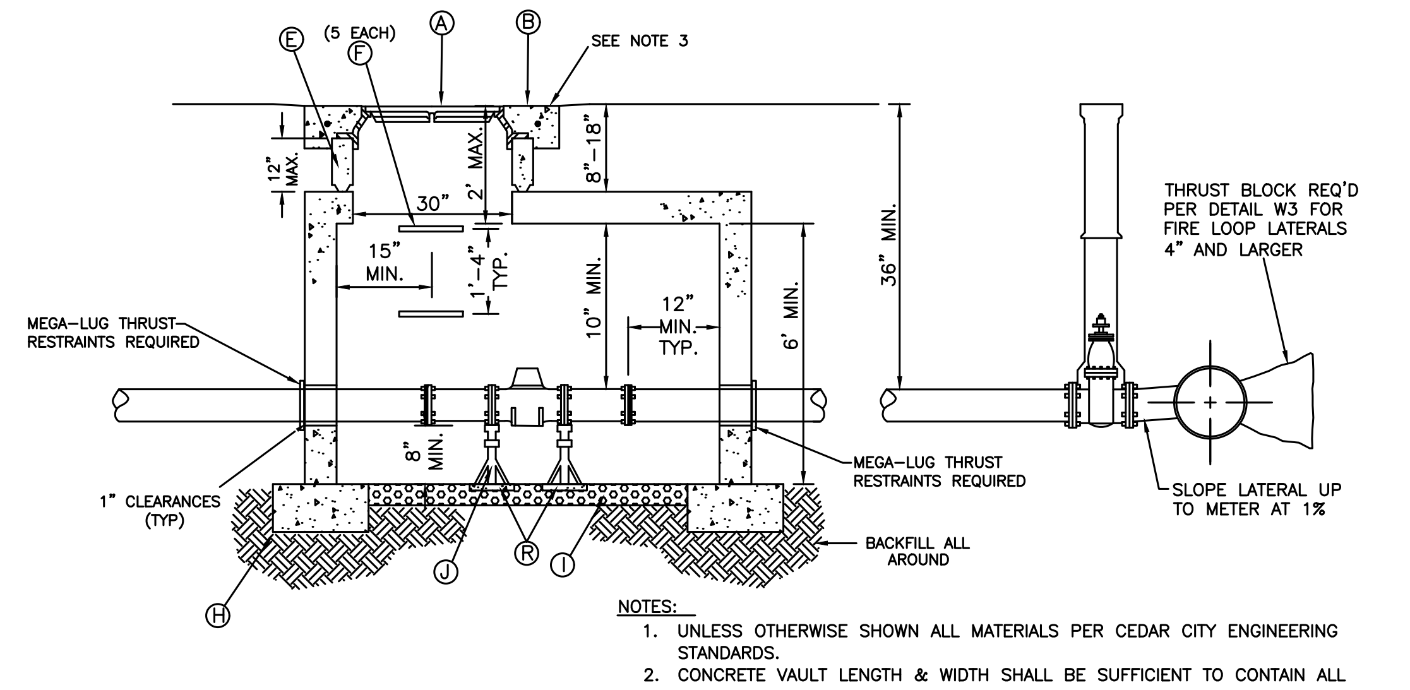
DATE	DESCRIPTION	BY
10/2021	ADDED NOTE 8	J.A.S.
11/2024	CHANGE 1" METER BOX	K.J.F.

CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 11/2024
DRAWN: T.B.M.
CHECKED: K.J.F.



PLAN

N.T.S.



NOTE: ALL VALVES AND FITTINGS TO BE SAME SIZE AS PIPE.

ELEVATION

N.T.S.

NOTES:

1. UNLESS OTHERWISE SHOWN ALL MATERIALS PER CEDAR CITY ENGINEERING STANDARDS.
2. CONCRETE VAULT LENGTH & WIDTH SHALL BE SUFFICIENT TO CONTAIN ALL FITTINGS AND MAINTAIN INDICATED CLEARANCE FROM WALLS.
3. WATER METER LIDS & COVERS SHALL ONLY BE INSTALLED IN LANDSCAPED AREAS UNLESS APPROVED BY WATER SUPERINTENDENT.
4. VAULTS ARE DESIGNED TO MEET ASTM C858 WITH AASHTO HS-20 LOADING.
5. NO CULINARY WATER CONNECTION TO FIRE SPRINKLER SUPPLY LINES.
6. ALL PIPE MATERIALS AND FITTINGS MUST BE RATED FOR WATER SYSTEM PRESSURE.

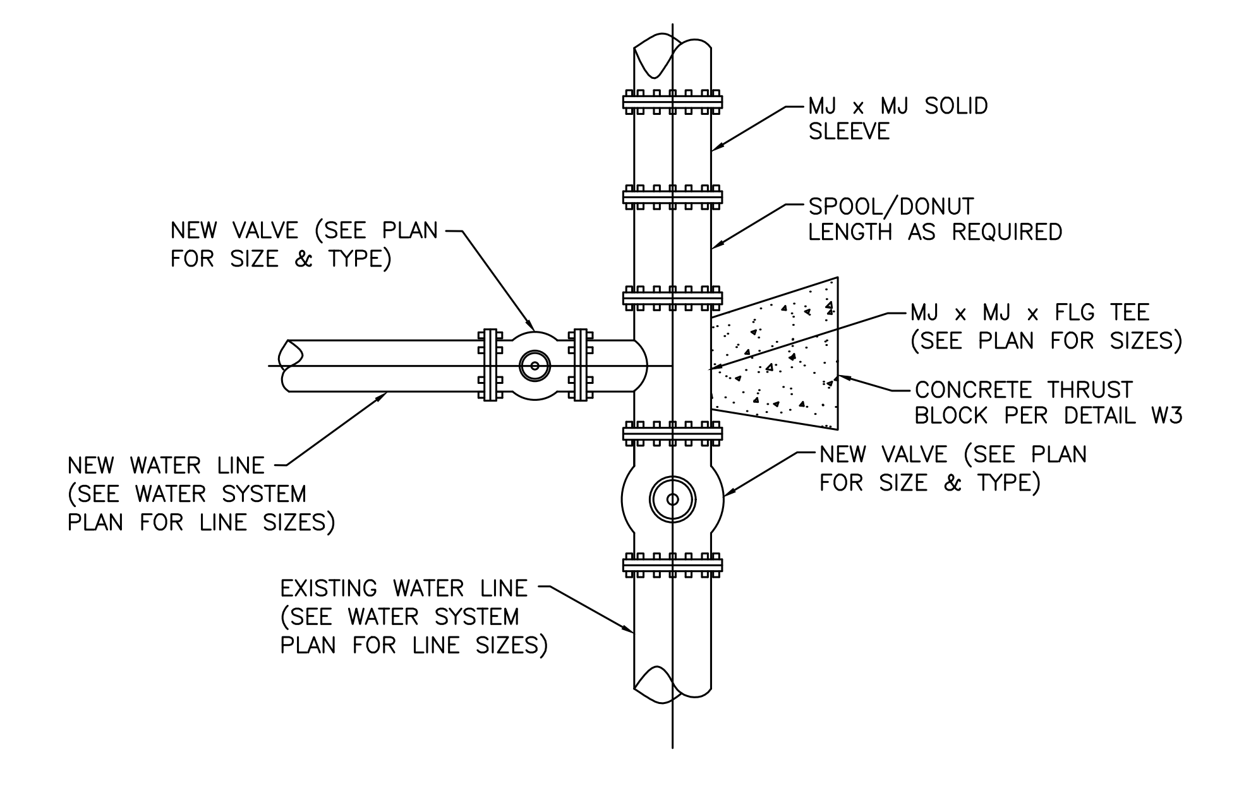
LEGEND

NO.	*	ITEM	DESCRIPTION
Ⓐ		MANHOLE RING AND COVER (RIBLESS)	D&L A-1180 O.A.E.
Ⓑ		4' Ø X 8" THICK CONCRETE COLLAR	W/ 40" Ø #4 BARS & FIBERS
Ⓒ		NOT USED	
Ⓓ		NOT USED	
Ⓔ		GRADE RING(S)	MUST BE SEALED
Ⓕ		MANHOLE STEP	(M.A. INDUSTRIES INC. O.A.E.)
Ⓖ		CONCRETE VAULT TOP (4'X 6')	AMCOR UV46T O.A.E.
Ⓗ		9" X 18" FOOTING W/ 3-#4 BARS	
Ⓘ		4" THICK DRAIN GRAVEL	
Ⓙ		(4) LEVELING JACKS (LENGTH VARIES)	SLIDEWINDER PART #23535 BY BARKER MANUF. CO.
Ⓚ		SINGLE LEAK DETECTOR CHECK	WATTS SERIES SS07F O.A.E.
Ⓛ		3/4-INCH BY-PASS KIT	WITH METER AND VALVES
Ⓜ		FLANGE ADAPTER	CEMENT LINED
Ⓝ		DUCTILE IRON PIPE	CEMENT LINED
Ⓞ		GATE VALVE WITH BOX	
Ⓟ		CITY WATER MAIN	
Ⓠ		NOT USED	
Ⓡ		12" x 12" x 2" CONCRETE BLOCK	
Ⓢ		PIPE MATERIAL TO BUILDING PER PLUMBING CODE	
Ⓣ		DUCTILE IRON PIPE (TO 10' OUTSIDE OF VAULT)	

SHEET NO. W8
FILE:
FIRE LOOP
DETECTOR CHECK VALVE
(FIRE FLOWS ONLY)

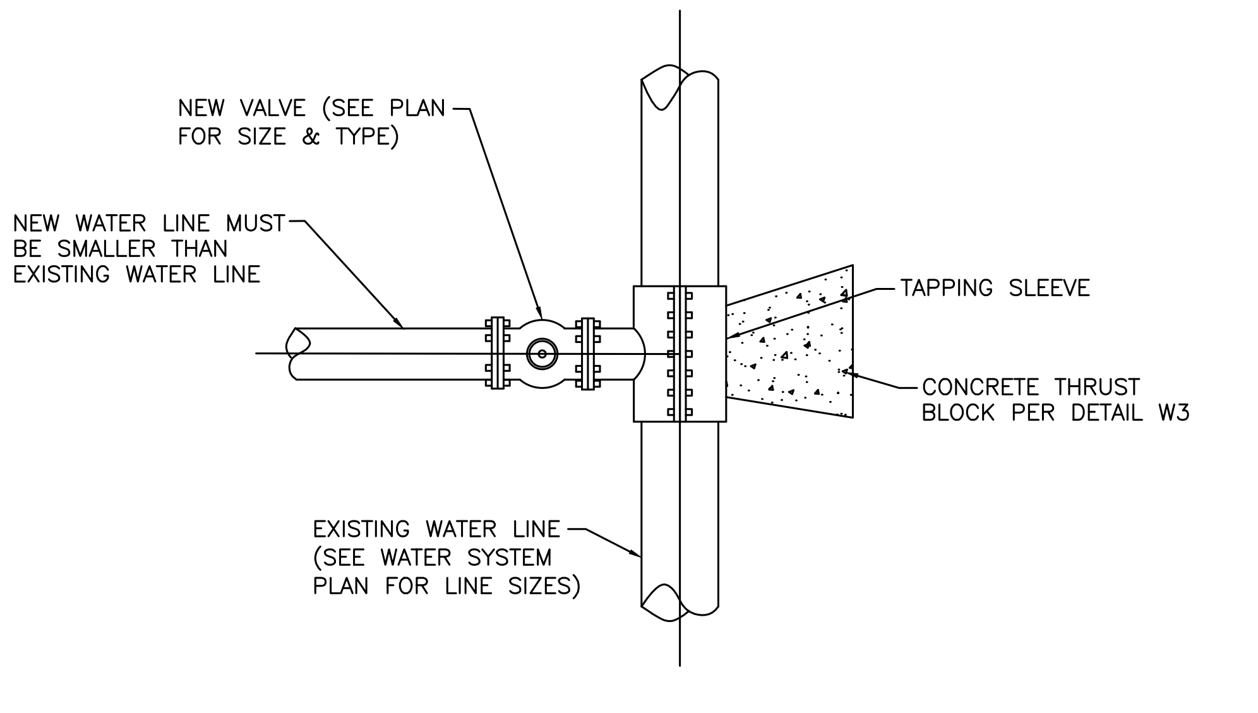
DATE	DESCRIPTION	BY
7/2021	ADDED MEGA-LUGS	J.A.S.

CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 7/2021
DRAWN: T.B.M.
CHECKED: J.A.S.



CUT-IN TEE CONNECTION

N.T.S.



TAPPED CONNECTION

N.T.S.

SHEET NO. W10
FILE:
WATER MAIN TO MAIN CONNECTION
REVISIONS — DATE / DESCRIPTION / BY
CEDAR CITY
10 NORTH MAIN STREET
CEDAR CITY, UTAH 84720
PH. (435) 586-2963
SCALE:
DATE: 7/2021
DRAWN: T.B.M.
CHECKED: J.A.S.

WATSON ENGINEERING COMPANY, INC.

472 N 2150 W, Suite 7
Cedar City, UT 84721

Tel. (435) 586-3004

www.wecinc.com

CIVIL DETAIL SHEET 3

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

Jan. 7, 2026
No. 5049564
TIM G

DRAWN BY:
C.A. SWASEY

CHECKED BY:
D. T. BROWN

DATE:
January 7, 2026

SCALE:
N.T.S.

WATSON PROJECT No.:
25-7745

FILE:
ICSD_BUSGARAGE - CDS.DWG

sheet CD3

CEDAR CITY
MINIMUM TESTING REQUIREMENTS

DESCRIPTION	TEST / QUANTITY	QUANTITY		TESTS REQ'D
ROAD EMBANKMENT DENSITY TESTS	1/500 C.Y.	436	C.Y.	1
ROAD SUBGRADE DENSITY TESTS	1/1,000 S.Y.	1,545	S.Y.	2
TRENCH DENSITY TESTS				
STORM DRAINS / CULVERTS	2/200 L.F. OF TRENCH	0	L.F.	0
STORM DRAIN MANHOLES / INLET BOX	2/MANOLE OR BOX	0	EACH	0
IRRIGATION LINE	2/200 L.F. OF TRENCH	0	L.F.	0
WATERLINE (INCLUDES F.H. & SERVICE LATERALS)	2/200 L.F. OF TRENCH	110	L.F.	2
SEWER LINE (INCLUDES SERVICE LATERALS)	5/200 L.F. OF TRENCH	27	L.F.	5
SEWER MANHOLE	5/EACH MANHOLE	0	EACH	0
VALVES	2/VALVE OR VALVE SET	0	EACH	0
UTILITY CONDUITS	2/200 L.F. OF TRENCH	0	L.F.	0
ROAD PIT RUN DENSITY TESTS	1/7,000 S.F.	13,905	S.F.	2
ROAD PIT RUN THICKNESS TESTS	1/5,000 S.F.	13,905	S.F.	3
ROAD BASE COURSE DENSITY TESTS	1/7,000 S.F.	13,905	S.F.	2
ROAD BASE THICKNESS TESTS	1/5,000 S.F.	13,905	S.F.	3
CURB/GUTTER BASE DENSITY TESTS	1/300 L.F.	1,316	L.F.	5
SIDEWALK BASE DENSITY TESTS	1/300 L.F.	1,316	L.F.	5
ASPHALT EXTRACTION TESTS	1/500 TONS OR 1 PER DAY WHICHEVER IS MORE	181	TON	1
ASPHALT DENSITY TESTS	1/7,000 S.F.	13,905	S.F.	2
ASPHALT THICKNESS TESTS	1/10,000 S.F.	13,905	S.F.	2
CONCRETE CYLINDER BREAKS	3/50 C.Y.	157	C.Y.	12
CONCRETE AIR ENTRAINMENT	1 IF INITIAL TEST PASSES	16	LOADS	16
CONCRETE SLUMP TESTS	1 IF INITIAL TEST PASSES	16	LOADS	16
ROAD BASE GRADATION TEST	1/15,000 S.F.	13,905	S.F.	1
CURB & GUTTER BASE COURSE GRAD.	1/2,000 L.F.	1,316	L.F.	1
CURB & GUTTER THICKNESS TEST	1/200 L.F.	1,316	L.F.	7
SIDEWALK THICKNESS TEST	1/200 L.F.	1,316	L.F.	7

FILL CHART

Material Location	Description	Material Classification			Compaction/Density Requirement (NOTE 3)
FINAL FILL Fill starting from the top of the embedment fill layer. (NOTE 1 and 2)	Suitable Fill Materials as noted in the Project Geotechnical Report and noted on the Site Design Engineer's Plans	See Project Geotechnical Report and Site Design Engineer's Plans			Plate Compact or Static Roll loose lifts to densify fill. Use at least two full passes of the equipment to level the layer. Continue until 24 inches of total fill thickness has been placed above the tank. For AASHTO M145 soils, a minimum of 95% of the Standard Proctor Maximum Dry Density is recommended. After 24 inches of fill is placed, place fill in accordance with the engineer of record's relative compaction requirement or to 95% of the Standard Proctor Maximum Dry Density - whichever is greater.
EMBEDMENT FILL Fill immediately Surrounding the sides and top of tank (NOTE 4)	Sand-Gravel Mixtures or Open-Graded Crushed Aggregate Blends	AASHTO M145 A-1, A-2-4, A-3	or	AASHTO M43 3, 357, 4, 467, 5, 56, 57	Plate Compact or Static Roll loose lifts to densify fill. Use at least two full passes of the equipment to level the layer. For AASHTO M145 soils, a minimum of 95% of the Standard Proctor Maximum Dry Density is recommended.
BEDDING FILL Fill immediately below the tank (NOTE 4)					

NOTE 1: This layer can include pavement subbase
NOTE 2: If open-graded aggregates are used for embedment fill, fines migration from the final to embedment fill layer may be reduced by installing a layer of 6 oz non-woven geotextile fabric at the final and embedment fill interface.
NOTE 3: See Construction Equipment Table for more information for construction equipment limitations.
NOTE 4: Import or native soils may be used if the soils meet the material classification listed. Fill material should be selected based on classification, groundwater conditions, and tank invert elevation.

CONSTRUCTION EQUIPMENT CHART

Equipment Make (NOTE 1)	Maximum Gross Vehicle Weight (lbs)	Minimum Fill Depth over Tank (in)
Plate Compactor	5,500	6
Compact Track Loader (NOTE 2)	7,500	6
Rubber-tired Skid Steer (NOTE 3)	7,500	14
Low Ground Pressure Tracked Vehicles (NOTE 4)	20,000	14
Roller - Static Mode	12,000	18
Roller - Vibratory Mode	12,000	24
Dump Trucks and Pans	NOTE 5	

NOTE 1: Vehicles shall make straight runs only across tank footprint.
NOTE 2: Maximum ground pressure = 5 psi
NOTE 3: Maximum axle load = 5,250 lbs
NOTE 4: Maximum ground pressure = 7 psi
NOTE 5: Contact ACO for more information regarding dump truck and pan traffic during construction.
NOTE 6: Backfill material may be temporarily unloaded near the excavation. Material shall not be stockpiled near the excavation for longer than 24 hours.

COVER CHART

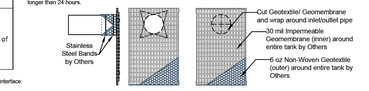
Live Loading Condition	Cover Thickness (inches)	
	Minimum	Maximum
Non-Trafficked Areas (i.e. Landscaping)	12	32
Passenger Vehicles Parking Lot (i.e. Gross Vehicle Weight <10,000 lbs)	18	32
Passenger Vehicle Parking Lot with one weekly AASHTO HS-20 vehicle	24	32
Frequent AASHTO HS-30 Traffic	26	32

NOTE 1: Minimum Cover Thickness in non-trafficked areas is based on landscape surface with a 40 degree load distribution. In trafficked areas, Minimum Cover Thicknesses are based on an asphalt-surfaced pavement with a 30 degree load distribution.
NOTE 2: Calculations assume backfill with a minimum 32-degree angle of internal friction and a maximum density of 120 lbs per cubic foot, and a seasonal groundwater elevation at least 2 feet below the invert of the tank.

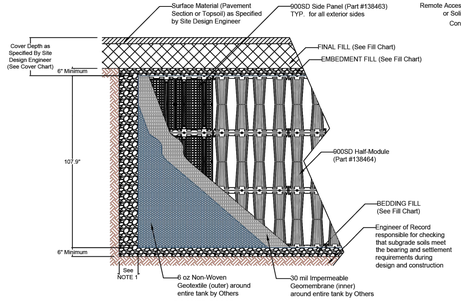
SIDE PANEL PIPE DIAMETER CHART

Inlet/Outlet Pipe Diameter	
Minimum	Maximum
4 inches	24 inches (Note 2)

NOTE 1: Cut inlet / outlet pipe hole prior to side panel installation.
NOTE 2: Pipe holes should be aligned with the vertical centerline of the side panel. For pipes larger than 18 inches, center the pipe hole along the seam of two side panels.
NOTE 3: Contact ACO for guidance for inlet / outlet pipes larger than 24-inch diameter

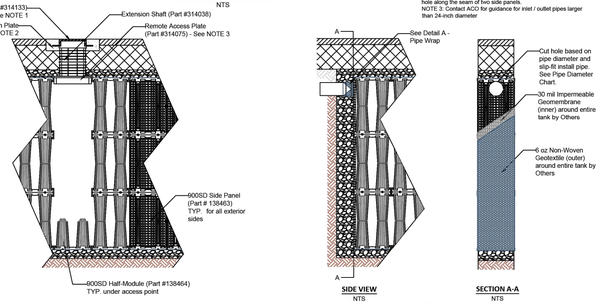


DETAIL A - PIPE WRAP
NTS



3 LAYER 900SD
DETENTION CROSS SECTION
NTS

NOTE 1: The minimum width of sidewall backfill is 12" or large enough to accommodate selected compaction equipment, whichever is greater.



3 LAYER 900SD
ACCESS POINT CROSS SECTION
NTS

NOTE 1: Ventilation may be crucial to reducing the pressure build up within the system. If solid access covers are used, alternative methods of ventilation are recommended.
NOTE 2: Concrete Load Plate not required for unpaved applications. Consult Engineer of Record for requirements
NOTE 3: The Remote Access Plate is approximately the size of half of a half-module. The half-module at the top of the tank must be cut in half to accommodate the Remote Access Plate

3 LAYER 900SD
PIPE INSTALLATION
NTS

DRAWN BY **A Frye**	CHECKED BY **J Jonke**	**STORMBRIXX STANDARD DETAILS**	
DATE **12/23/2024**	REV. **3**	**900SD SYSTEM - 3 LAYER - DETENTION**	

ACO, INC.

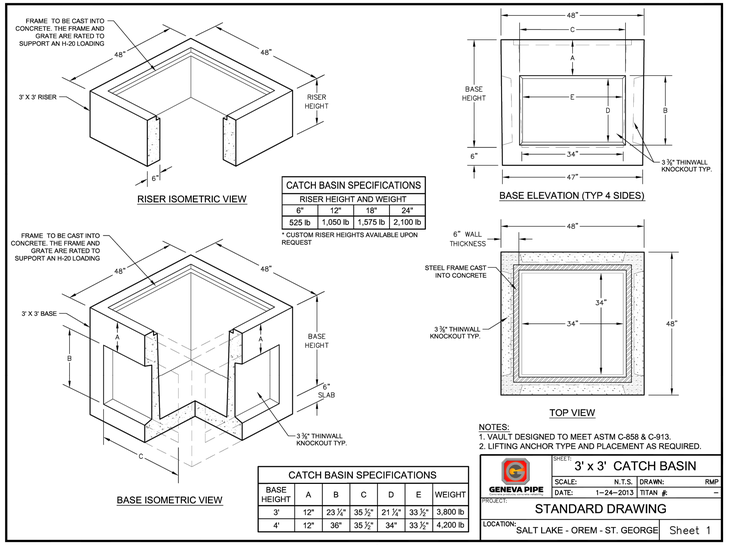
WEST SALES OFFICE
925 W BEECHCRAFT ST.
CASA GRANDE, AZ 85122
Tel. (888) 490-9552
Fax (520) 421-9899

EAST SALES OFFICE
9470 PINECONE DRIVE
MENTOR, OH 44060
Tel. (800) 543-4764
Fax (440) 639-7235

SOUTHEAST SALES OFFICE
491 MUNN RD. SUITE #225
FORT MILL, SC 29715
Tel. (440) 639-7230
Fax (803)-802-1063

www.acoswm.com

204 ACO STORMBRIXX DETAIL - THREE LAYER SYSTEM
SCALE:N.T.S.



CATCH BASIN SPECIFICATIONS

RISER HEIGHT AND WEIGHT			
6"	12"	18"	24"
525 lb	1,050 lb	1,575 lb	2,100 lb

* CUSTOM RISER HEIGHTS AVAILABLE UPON REQUEST

BASE ELEVATION (TYP 4 SIDES)

TOP VIEW

NOTES:
1. VAULT DESIGNED TO MEET ASTM C-858 & C-913.
2. LIFTING ANCHOR TYPE AND PLACEMENT AS REQUIRED.

CATCH BASIN SPECIFICATIONS

BASE HEIGHT	A	B	C	D	E	WEIGHT
3'	12"	23 ¼"	35 ½"	21 ¼"	33 ½"	3,800 lb
4'	12"	36"	35 ½"	34"	33 ½"	4,200 lb

GENEVA PIPE

SHEET:	3' x 3' CATCH BASIN
SCALE: N.T.S.	DRAWN: RMP
DATE: 1-24-2013	TITAN #: –
PROJECT:	STANDARD DRAWING
LOCATION:	SALT LAKE - OREM - ST. GEORGE Sheet 1

205 3'x3' CATCH BASIN DETAIL
SCALE:N.T.S.

WATSON ENGINEERING COMPANY, INC.

472 N 2150 W, Suite 7
Cedar City, UT 84721

Tel. (435) 586-3004

www.wecinc.com

CIVIL DETAIL SHEET 4

IRON COUNTY SCHOOL DISTRICT

ICSD BUS GARAGE
WITHIN SEC. 27, T. 35 S., R. 11 W., S.L.M.
CEDAR CITY, IRON COUNTY, UTAH

STATE OF UTAH — PROFESSIONAL ENGINEER — No. 5049564 — Jan. 7, 2026 — TIMOTHY A. WATSON

DRAWN BY:
C.A. SWASEY

CHECKED BY:
D. T. BROWN

DATE:
January 7, 2026

SCALE:
N.T.S.

WATSON PROJECT No.:
25-7745

FILE:
ICSD_BUSGARAGE - CDS.DWG

sheet **CD4**