ENT 50429:2021 PG 1 of 48
ANDREA ALLEN
UTAH COUNTY RECORDER
2021 Mar 17 9:46 am FEE 40.00 BY JR
RECORDED FOR AMERICAN FORK CITY

STORM WATER FACILITY AGREEMENT

THIS AGREEMENT, is made and entered into this 14 day of January, 2021, by and between Castlewood Development (hereinafter referred to as "Owner", and American Fork City (hereinafter referred to as the "City"), a Municipal Corporation.

RECITALS

WHEREAS, the Owner desires to improve, develop or redevelop real property located at approximately 200 S 900 W in American Fork City, Utah County, State of Utah (hereinafter referred to as the "Property"), which is more particularly described in Exhibit A attached hereto;

WHEREAS, said development requires the installation and maintenance of storm water facilities (hereinafter referred to as "Facilities") to be constructed according to designs and plans approved by the City;

WHEREAS, the Owner, for and in behalf of its administrators, executors, successors, heirs, or assigns, including any homeowners association, recognizes and agrees that the health, safety, and welfare of the citizens of the City require that the Facilities be constructed and adequately maintained on the Property throughout the life of the development; and

NOW, THEREFORE, in consideration of the foregoing, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

SECTION 1
FACILITIES

Facilities include all storm water detention and control structures, flood control devices, or other improvements, which may include, but is not limited to all pipes, channels, or other structures and infrastructure built to convey storm water to the Facilities, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the storm water which are required by the City in the site plan attached hereto as Exhibit B.

SECTION 2
FACILITIES CONSTRUCTION

The Owner shall, at its sole cost and expense, construct the Facilities in accordance with the plans and specifications for the development approved by the City. Owner understands and agrees that modifications may be needed to make the system work properly after the Facilities are installed and agrees to make modifications and adjustments as may be necessary and required by the City.

Approved as to form:
Attorney for American Fork City

SECTION 3
MAINTENANCE

The Owner shall, at its sole cost and expense, adequately maintain the Facilities in good working condition acceptable to the City and in accordance with the schedule of long term maintenance activities agreed to by the parties and attached hereto as Exhibit C. Adequate maintenance is herein defined as follows: 1) keeping the Facilities in good working condition so that the Facilities are performing their design functions, 2) performing facility inspections and repairs as may be needed, and 3) replacing and/or modifying portions, or all of the system, as may be needed to maintain the intended function of the facility.

SECTION 4
EASEMENT

The Owner hereby grants permission to the City, its authorized agents, and employees to enter upon the Property and to inspect the Facilities whenever the City deems it necessary. Whenever possible, the City shall provide notice prior to entry. Inspections by the City shall be conducted in a reasonable manner and at reasonable times, as determined appropriate by the City. The purpose of the inspection shall be to determine and ensure that the Facilities are being adequately maintained, are continuing to perform in an adequate manner, and are in compliance with all laws, regulations, and approved plans and specifications. The Owner hereby grants a twenty-five (25) foot access easement in favor of the City with the midpoint of the easement lying over the midpoint of the Facilities identified in the attached plan. This easement shall be limited in scope to allow only those actions which are necessary to allow the City to inspect, ensure adequate maintenance, and to cause any repairs to be made that the City deems necessary. This easement shall include, but is not be limited to, prohibiting the construction of structures or improvements that would impact or obstruct the intended purposes of the Facilities or restrict the ability of the Owner or the City to inspect, maintain, or repair the Facilities.

SECTION 5
FAILURE TO MAINTAIN FACILITIES

In the event the Owner fails to maintain the Facilities in good working order acceptable to the City and in accordance with the maintenance schedule incorporated in this Agreement, the City, in addition to any other remedies provided by State or City code, may, with due notice as provided in Section 6, enter the property and take whatever steps it deems necessary to return the Facilities to good working order. This provision shall not be construed to allow the City to erect any structure of a permanent nature on the property that is not included in the plans and specifications for the development, or other agreement between the parties. It is expressly understood and agreed that the City is under no obligation to maintain or repair the Facilities. The decision to maintain or repair the Facilities shall be at the City's sole discretion and in no event shall this Agreement be construed to impose any such obligation on the City or to create any liability for the City refusing to undertake such a duty.

Approved as to form:
Attorney for American Fork City

SECTION 6
NOTICE OF DEFICIENCIES

If the City finds that the Facilities contain any defects or are not being maintained adequately, the City shall provide Owner written notice of the defects or deficiencies and provide Owner with a reasonable time, as determined by the City, to cure such defects or deficiencies.

SECTION 7
RECOUPMENT OF COSTS

In the event the City performs work of any nature pursuant to the Agreement, or expends any funds in the performance of said work for labor, use of equipment, supplies, materials, and the like, the Owner shall reimburse the City within thirty (30) days of receipt thereof for all the costs incurred by the City. If not paid within the prescribed time period, the City shall be entitled to record a lien against the real property in the amount of such costs. The actions described in this section are in addition to and not in lieu of any and all legal remedies available to the City as a result of the Owner's failure to maintain the Facilities.

SECTION 8
LIMITATION OF LIABILITIES

It is the sole intent of this Agreement to insure the proper construction and maintenance of the Facilities by the Owner. As the Facilities are not part of the City's Storm Water Collection System, this agreement does not create or extend any rights to immunity or liability protections provided by law to municipalities. This Agreement shall not be deemed to create or affect any additional liability of any party for damage alleged to result from or caused by storm water runoff, or to constitute a waiver of any immunity provided to the City through the Utah State Code or Constitution.

SECTION 9
SEDIMENT ACCUMULATION

Adequate maintenance shall include control of sediment accumulation resulting from the normal operation of the Facilities. The Owner will make accommodations for the removal and appropriate disposal of all accumulated sediments.

SECTION 10
REQUIREMENTS AND STANDARDS

The Parties agree to follow and comply with all requirements applicable to storm water detention and control facilities as by the Utah Department of Environmental Quality, Division of Water Quality, including the Small MS4 General UPDES Permit requirements, and by the City ordinances and Storm Water Management Plan as existing at the time of executing this agreement and as may be amended from time to time. The parties agree that these requirements and regulations are incorporated herein by this reference and that this agreement shall be deemed

Approved as to form:
Attorney for American Fork City

automatically amended to incorporate any and all changes and amendments made thereto after the signing of this agreement.

SECTION 11
INSPECTIONS

The Owner shall perform an annual inspection of the Facilities. The City may require more frequent inspections should it have reason to believe that such inspections are necessary. All inspections shall be conducted by a qualified inspector and the results shall be reported to the City. The purpose of the inspection and reporting is to assure safe and proper functioning of the Facilities, including but not limited to, the structural improvements, berms, outlet structure, pond areas, access roads, vegetation, landscaping, etc. All annual inspection reports shall be submitted to the City Public Works Department no later than September 1 of any given year and shall be on the Maintenance Inspection Report attached hereto as Exhibit D.

SECTION 12
INDEMNITY

The Owner indemnifies and holds harmless the City and its authorized agents and employees for any and all damages, accidents, casualties, occurrences or claims which might arise or be asserted against the City from the construction, presence, existence or maintenance of the facility or facilities by the Owner. In the event a claim is asserted against the City, its authorized agents or employees, the City shall promptly notify the Owner and the Owner shall defend at its own expense any suit based on such claim. If any judgment or claims against the City, its authorized agents or employees shall be allowed, the Owner shall pay for all costs and expenses in connection herewith.

SECTION 13
COVENANT RUNNING WITH THE LAND

This Agreement shall be recorded at the Utah County Recorder's Office and shall constitute a covenant running with the land and shall be binding on the Owner, its administrators, executors, heirs, assigns and any other successors in interest, including any homeowners association.

SECTION 14
REMEDIES

This Agreement may be enforced by proceedings at law or in equity by or against the parties hereto and their respective successors in interest. Any rights or remedies contained in this Agreement shall be in addition, and non-exclusive, to any rights existing under the Utah Code or that may exist under the common law.

Approved as to form:
Attorney for American Fork City

SECTION 15
ATTORNEYS FEES

If any party retains, consults, or uses an attorney because of any breach, default, or failure to perform as required by this Agreement, the non-breaching/defaulting party shall be entitled to reasonable attorney's fees incurred before litigation is filed. In the event that any litigation is commenced to enforce or interpret this Agreement the prevailing party shall be entitled to its attorneys fees, expert witness expenses, and litigation related expenses, including but not limited to court costs.

SECTION 16
THIRD PARTY BENEFICIARIES

This Agreement shall be binding upon and inure solely to the benefit of the parties herein and is not intended to create contractual rights in any third party.

SECTION 17
NO PARTNERSHIP

Nothing contained in this Agreement shall be deemed to create any form of a partnership or joint-venture between the City and Owner.

SECTION 18
UTAH LAW AND VENUE

This Agreement shall be interpreted pursuant to the laws of the State of Utah. Any and all suits for any claims or for any and every breach or dispute arising out of this Agreement shall be maintained in the appropriate court of competent jurisdiction in Utah County, Utah.

SECTION 19
INTEGRATED AGREEMENT

This Agreement sets forth the entire agreement of the parties and supersedes all prior agreements, whether written or oral, that exists between the parties regarding the subject matter of this Agreement.

SECTION 20
SEVERABILITY

The provisions of this agreement shall be severable and if any phrase, clause, sentence or provision is declared unconstitutional, or the applicability thereof to the, its successors and assigns, is held invalid, the remainder of this Covenant shall not be affected thereby.

Approved as to form:
Attorney for American Fork City

SECTION 21
AMENDMENTS

Except as expressly provided elsewhere in this Agreement, no provision of this Agreement may not be modified except in writing agreed to by both parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the dates set forth below.

OWNER

Date: 12.23, 2020.

By: Jeffrey Duke

Its: Manager

NOTARIZATION

STATE OF UTAH)
) :ss
COUNTY OF UTAH)

The above Agreement was executed on this 23rd day of December, 2021 by Jeffrey A Duke, for and on behalf of Castlewood Development, the Owner identified in the above signed Agreement. In executing this Agreement, the signer did swear before me that he is duly authorized to sign the agreement on behalf of the Owner.

Notary Public - State of Utah
LISA MARIE TOMLIN
Comm. #710343
My Commission Expires
January 31, 2024

Lisa Marie Tomlin
NOTARY PUBLIC

AMERICAN FORK CITY

Date: March 10, 2021.

Scott Sensanbaugher
Director of Public Works

ATTEST:

Approved as to form:
Attorney for American Fork City

EXHIBIT A

Beginning at a point on the south line of 200 South Street said point being South 89°59'22" West 2465.02 feet and North 1022.37 feet from the East Quarter Corner of Section 22 Township 5 South, Range 1 East and running

thence South 02°24'06" West 1,069.47 feet to the North line of 350 South Street;

thence North 89°28'52" West 71.77 feet along the North line of said 350 South Street;

thence Westerly 60.65 feet along the arc of a 503.00 foot radius curve to the left (center bears South 00°31'08" West and the chord bears South 87°03'53" West 60.61 feet with a central angle of 06°54'29");

thence South 83°36'38" West 33.48 feet along the North line of said 350 South Street;

thence Westerly 54.59 feet along the arc of a 447.00 foot radius curve to the right (center bears North 06°23'22" West and the long chord bears South 87°06'34" West 54.56 feet with a central angle of 06°59'51") along the North line of said 350 South Street;

thence North 89°23'31" West 139.42 feet along the North line of said 350 South Street;

thence Northwesterly 31.47 feet along the arc of a 20.00 foot radius curve to the right (center bears North 00°36'29" East and the long chord bears North 44°18'43" West 28.32 feet with a central angle of 90°09'36") along the North line of said 350 South Street to the East line of 900 West Street;

thence North 00°46'05" East 1,031.88 feet along East line of said 900 West Street;

thence Northeasterly 47.17 foot along the arc of a 30.00 feet radius curve to the right (center bears South 89°13'55" East and the chord bears North 45°48'43" East 42.46 feet with a central angle of 90°05'15") along the East line of said 900 West Street to the South line of 200 South Street;

thence South 89°08'40" East 379.83 feet along the Southeasterly line of 200 South Street to the point of beginning.

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CALL BLUESTAKES @ 811 AT LEAST 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.

NORTH

BENCHMARK

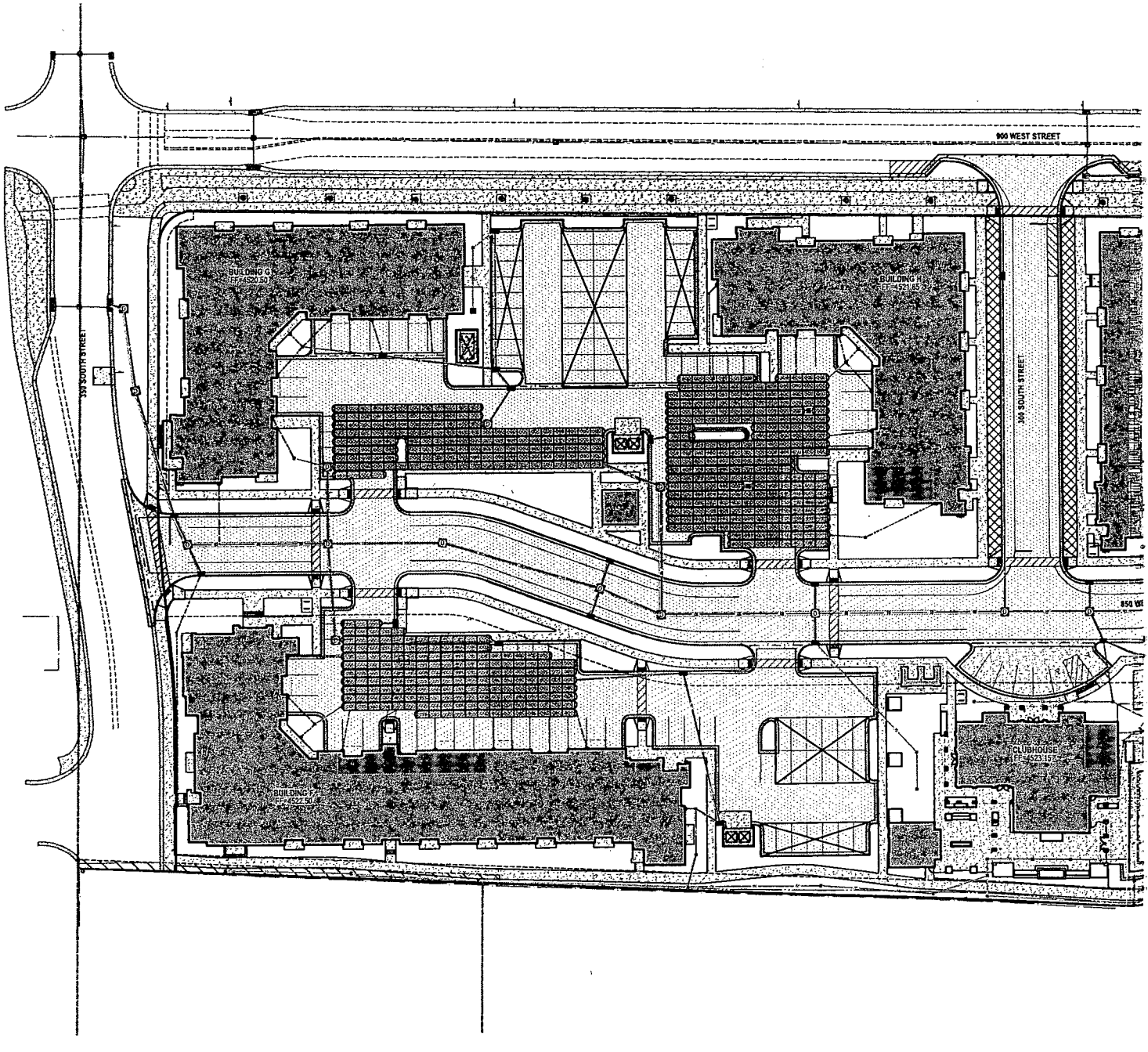
NORTH HALF OF SECTION 22, TOWNSHIP 5 SOUTH, RANGE 1 EAST SALT LAKE BASE AND MERIDIAN AMERICAN FORK, UTAH COUNTY, UTAH

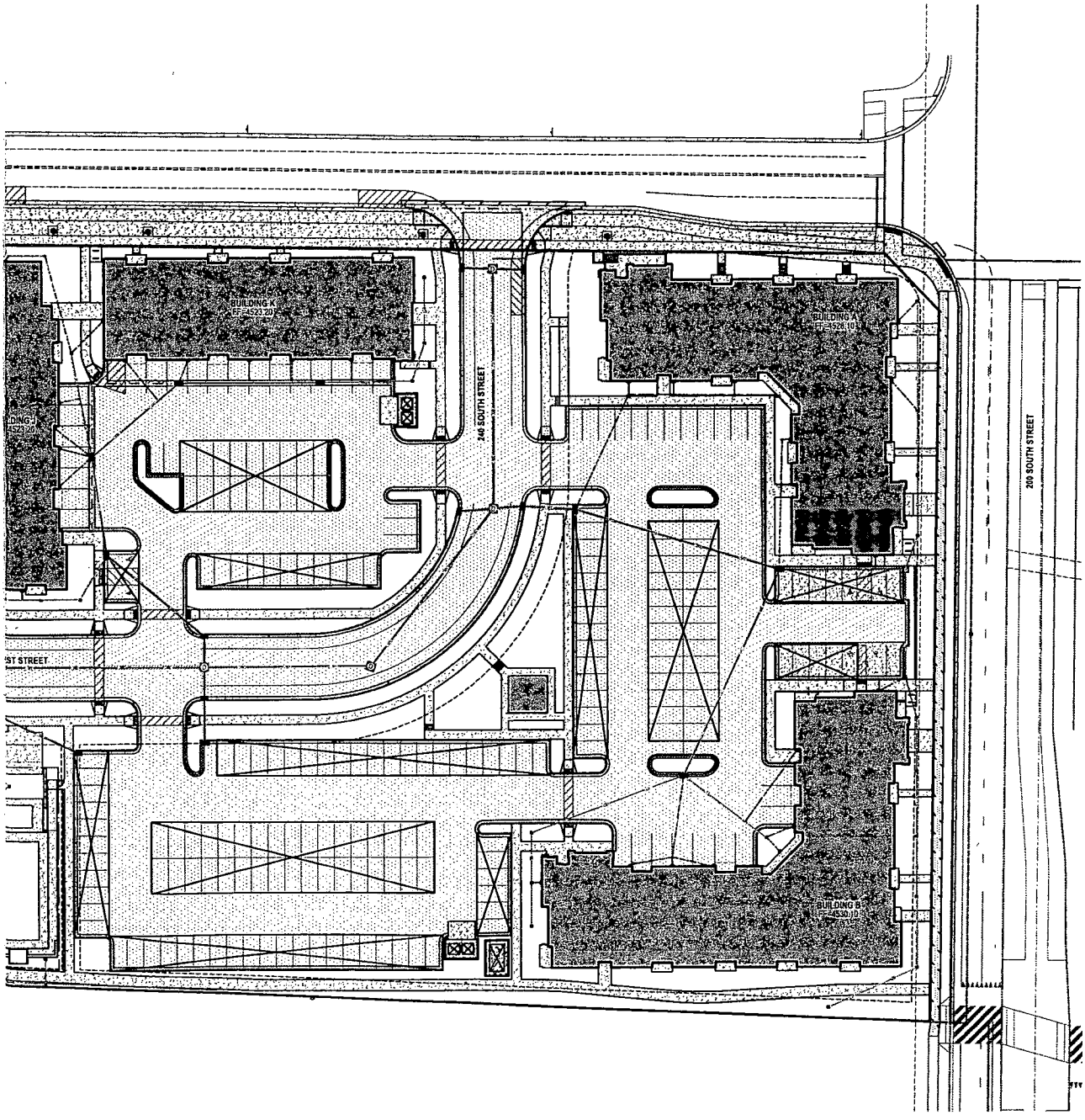
HORIZONTAL GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

HORZ: 1 inch = 40 ft.





ENSIGN
THE STANDARD IN ENGINEERING

SALT LAKE CITY
45 W. 10000 S., Suite 500
Sandy, UT 84070
Phone: 801.255.0529

LAYTON
Phone: 801.547.1100

TOOELE
Phone: 435.843.3590

CEDAR CITY
Phone: 435.865.1453

RICHFIELD
Phone: 435.896.2983

WWW.ENSIGNENG.COM

FOR:
DUAINE RASMUSSEN
6740 SOUTH 1300 EAST, STE 200
SALT LAKE CITY, UTAH, 84121
CONTACT:
DUAINE RASMUSSEN
PHONE: 801-000-0000

CASTLEWOOD AMERICAN FORK APTS

900 WEST 200 SOUTH
AMERICAN FORK, UTAH

LICENSED PROFESSIONAL ENGINEER
No. 7875714-2202
JARED K. FORD
9-10-2020
STATE OF UTAH

OVERALL DRAINAGE PLAN

PROJECT NUMBER	PRINT DATE
8618B	9/4/20
DRAWN BY	CHECKED BY
E. FISHER	J. FORD
PROJECT MANAGER	
J. FORD	

C-400

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NORTH

HORIZONTAL GRAPHIC SCALE

30 0 15 30 60

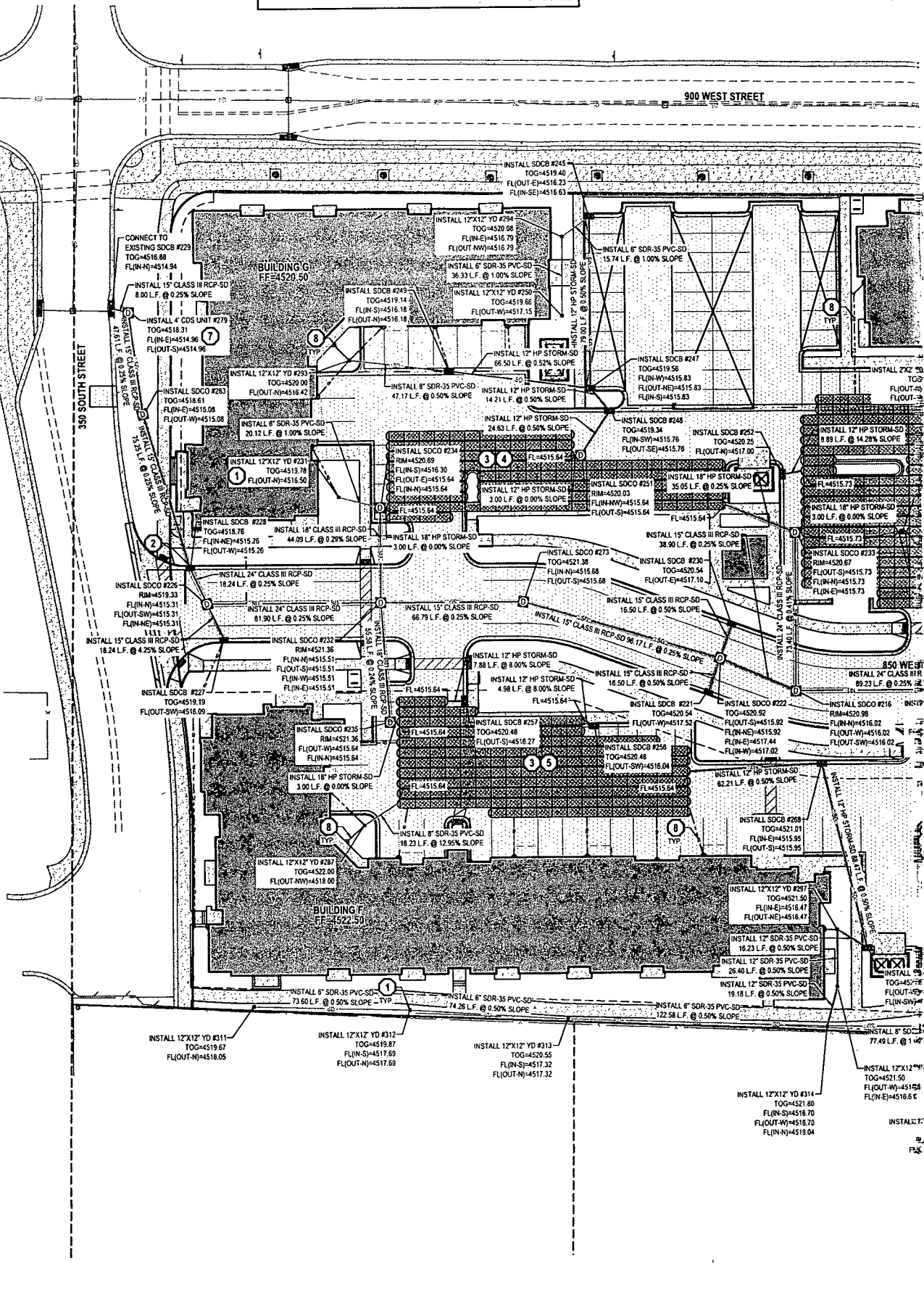
(IN FEET)

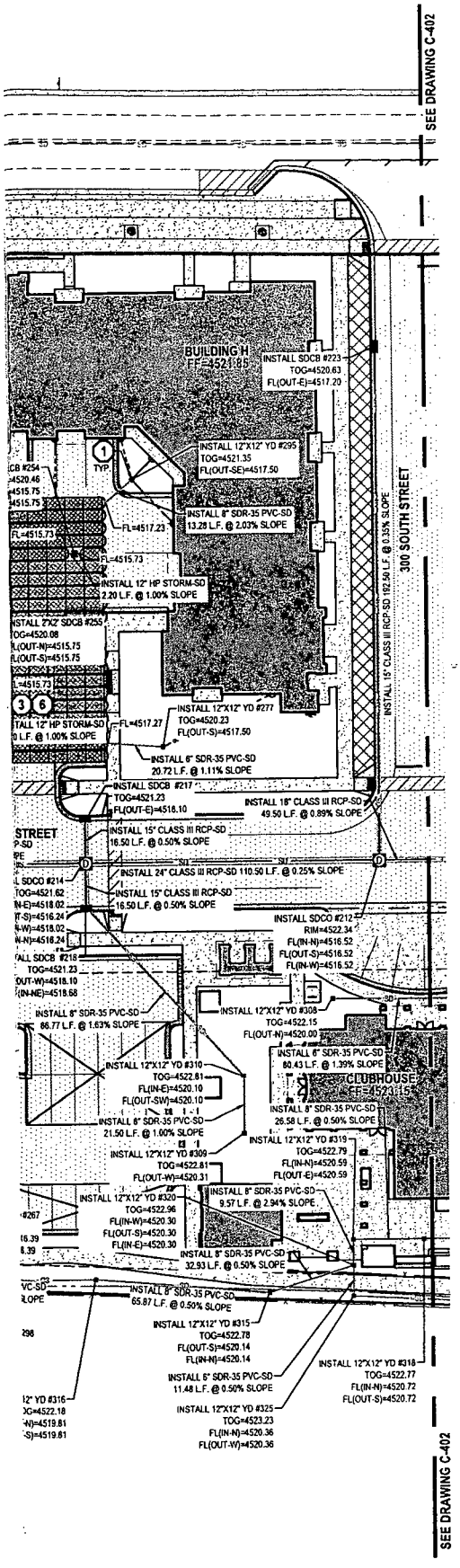
HORZ: 1 inch = 30 ft.

KEY MAP
NOT TO SCALE

BENCHMARK

NORTH HALF OF SECTION 22,
TOWNSHIP 5 SOUTH, RANGE 1 EAST
SALT LAKE BASE AND MERIDIAN
AMERICAN FORK, UTAH COUNTY, UTAH





GENERAL NOTES

ALL WORK TO COMPLY WITH THE GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.

ALL IMPROVEMENTS MUST COMPLY WITH ADA STANDARDS AND RECOMMENDATIONS.

ALL WORK SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER POSSIBLY INCLUDING, BUT NOT LIMITED TO, REMOVAL OF UNCONSOLIDATED FILL, ORGANICS, AND DEBRIS, PLACEMENT OF SUBSURFACE DRAIN LINES AND GEOTEXTILE, AND OVEREXCAVATION OF UNSUITABLE BEARING MATERIALS AND PLACEMENT OF ACCEPTABLE FILL MATERIAL.

THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE EXISTING SOIL CONDITIONS.

5. ELEVATIONS HAVE BEEN TRUNCATED FOR CLARITY. XX XX REPRESENTS AN ELEVATION OF 45XX.XX ON THESE PLANS.
6. LANDSCAPED AREAS REQUIRE SUBGRADE TO BE MAINTAINED AT A SPECIFIC ELEVATION BELOW FINISHED GRADE AND REQUIRE SUBGRADE TO BE PROPERLY PREPARED AND SCARIFIED. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
7. SLOPE ALL LANDSCAPED AREAS AWAY FROM BUILDING FOUNDATIONS TOWARD CURB AND GUTTER OR STORM DRAIN INLETS.
8. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT. THE CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS WITH THE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES AND UTILITY STRUCTURES THAT ARE TO REMAIN. IF CONFLICTS WITH EXISTING UTILITIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE IF ANY FIELD ADJUSTMENTS SHOULD BE MADE.
9. ALL STORM DRAIN INFRASTRUCTURE TO BE INSTALLED PER GOVERNING AGENCY OR APWA STANDARD PLANS AND SPECIFICATIONS.
10. ENSURE MINIMUM COVER OVER ALL STORM DRAIN PIPES PER MANUFACTURER'S RECOMMENDATIONS. NOTIFY ENGINEER IF MINIMUM COVER CANNOT BE ATTAINED.
11. ALL FACILITIES WITH DOWNSPOUTS/ROOF DRAINS SHALL BE CONNECTED TO THE STORM DRAIN SYSTEM. SEE PLUMBING PLANS FOR DOWNSPOUT/ROOF DRAIN LOCATIONS AND SIZES. ALL ROOF DRAINS TO HAVE MINIMUM 1% SLOPE.
12. THE CONTRACTOR SHALL ADJUST TO GRADE ALL EXISTING UTILITIES AS NEEDED PER LOCAL GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
13. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING CONCRETE, ASPHALT, OR STORM DRAIN STRUCTURES OR PIPES.
14. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.
15. ALL UNDERGROUND UTILITIES MUST BE INSPECTED AND APPROVED BY THE CITY INSPECTOR BEFORE TRENCH BACKFILLING IS COMPLETED.
16. STORM DRAIN DESIGN IS BASED ON GROUNDWATER INFORMATION OBTAINED FROM GEOTECHNICAL ENGINEERING REPORT - SEE GROUNDWATER EXHIBIT ON C-701. IF GROUNDWATER IS ENCOUNTERED WITHIN EXCAVATION AREA FOR STORMTECH CHAMBERS DURING CONSTRUCTION, CONTACT ENGINEER OF RECORD FOR RECOMMENDATIONS.

SCOPE OF WORK:

PROVIDE, INSTALL AND/OR CONSTRUCT THE FOLLOWING PER THE SPECIFICATIONS GIVEN OR REFERENCED, THE DETAILS NOTED, AND/OR AS SHOWN ON THE CONSTRUCTION DRAWINGS:

(1) 12" PVC INLINE DRAIN WITH SLOTTED GRATE AND 6" OUTLET RISER, INCLUDING ALL FITTINGS PER DETAIL 15/C-700. INSTALL PER MANUFACTURER'S SPECIFICATIONS. EXTEND END OF 6" SPOOL 1' ABOVE PROPOSED TOP OF GRATE ELEVATION. ADJUST GRATE TO APPROPRIATE FINAL ELEVATION PER PLANS AND LANDSCAPE TREATMENT.

(2) 6.24" DIAMETER ORIFICE PLATE PER DETAIL 16/C-700 INSTALLED ON WEST SIDE OF STORM DRAIN BOX.

(3) UNDERGROUND CHAMBER SYSTEM. SEE STORMTECH CHAMBER DETAILS ON SHEET C-701.
564 TOTAL STORMTECH SC-740 CHAMBERS
STORAGE REQUIRED = 43,844 CU. FT.
STORAGE PROVIDED = 43,872 CU. FT.

(4) BASIN #01 - 147 CHAMBERS
TOP OF GRAVEL = 4518.64
TOP OF CHAMBERS = 4518.14
BOTTOM OF CHAMBERS = 4515.64
BOTTOM OF GRAVEL = 4515.14

(5) BASIN #02 - 176 CHAMBERS
TOP OF GRAVEL = 4518.64
TOP OF CHAMBERS = 4518.14
BOTTOM OF CHAMBERS = 4515.64
BOTTOM OF GRAVEL = 4515.14

(6) BASIN #03 - 241 CHAMBERS
TOP OF GRAVEL = 4518.73
TOP OF CHAMBERS = 4518.23
BOTTOM OF CHAMBERS = 4515.73
BOTTOM OF GRAVEL = 4515.23

(7) 4' CONTECH CDS PRETREATMENT DEVICE. SEE CONTECH CDS STANDARD DETAIL ON SHEET C-701.

(8) 4" SDR-35 PVC @ 0.50% MINIMUM SLOPE ROOF DRAIN CONNECTION. CONNECT TO STORM DRAIN BOX, PIPE, OR CHAMBER SYSTEM. USE INSERT-A-TEE'S AS NEEDED FOR CONNECTIONS. SEE PLUMBING PLANS FOR CONTINUATION INTO BUILDING.

ENSIGN
THE STANDARD IN ENGINEERING

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Sandy, UT 84070
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LAYTON
Phone: 801.547.1100

TOOELE
Phone: 435.843.3590

CEDAR CITY
Phone: 435.865.1453

RICHFIELD
Phone: 435.896.2983

WWW.ENSIGNENG.COM

FOR:
DUAINE RASMUSSEN
6740 SOUTH 1300 EAST, STE 200
SALT LAKE CITY, UTAH, 84121
CONTACT:
DUAINE RASMUSSEN
PHONE: . 801-000-0000

CASTLEWOOD AMERICAN FORK APTS

900 WEST 200 SOUTH
AMERICAN FORK, UTAH

LICENSED PROFESSIONAL ENGINEER
No. 7675714-2202
JARED K. FORD
9-10-2020
STATE OF UTAH

DRAINAGE PLAN

PROJECT NUMBER	PRINT DATE
8618B	9/4/20
DRAWN BY	CHECKED BY
E. FISHER	J. FORD
PROJECT MANAGER	
J. FORD	

C-401

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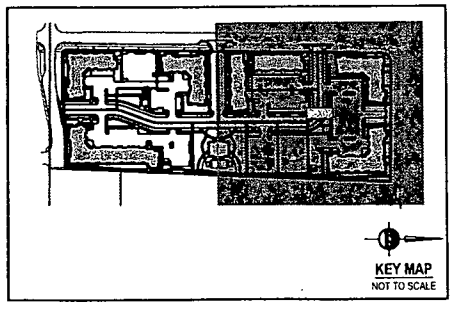
NORTH

HORIZONTAL GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
HORZ: 1 inch = 40 ft.



KEY MAP
NOT TO SCALE

BENCHMARK

NORTH HALF OF SECTION 22,
TOWNSHIP 5 SOUTH, RANGE 1 EAST
SALT LAKE BASE AND MERIDIAN
AMERICAN FORK, UTAH COUNTY, UTAH

SEE DRAWING C-401

900 WEST STREET

850 WEST STREET

300 SOUTH STREET

240 SOUTH STREET

BUILDING K

BUILDING J

CLUBHOUSE

CONNECT TO EX SDCB #225
TOG=4519.26
FL(IN-N)=4517.74

INSTALL 15" CLASS III RCP-SD
25.73 L.F. @ 0.50% SLOPE

INSTALL SDCB #224
TOG=4520.71
FL(OUT-S)=4517.87

INSTALL 15" CLASS III RCP-SD
16.51 L.F. @ 0.50% SLOPE

INSTALL SDCO #215
RIM=4522.94
FL(IN-N)=4519.37
FL(OUT-E)=4519.37
FL(IN-S)=4519.37

INSTALL SDCB #213
TOG=4522.55
FL(OUT-N)=4519.45

INSTALL SDCB #201
TOG=4522.57
FL(OUT-S)=4519.45

INSTALL 15" CLASS III RCP-SD
16.51 L.F. @ 0.50% SLOPE

INSTALL 12"X12" YD #289
TOG=4522.50
FL(OUT-E)=4520.40

INSTALL 6" SDR-35 PVC-SD
35.13 L.F. @ 1.00% SLOPE

INSTALL SDCB #242
TOG=4522.37
FL(IN-N)=4519.21
FL(OUT-SE)=4519.21

INSTALL SDCB #241
TOG=4522.37
FL(OUT-S)=4519.59
FL(IN-N)=4519.59

INSTALL 12"X12" YD #290
TOG=4522.50
FL(IN-W)=4520.05
FL(OUT-E)=4520.05

INSTALL 6" SDR-35 PVC-SD
21.03 L.F. @ 1.00% SLOPE

INSTALL 12"X12" YD #291
TOG=4522.50
FL(OUT-E)=4519.19

INSTALL 15" CLASS III RCP-SD 127.86 L.F. @ 0.35% SLOPE

INSTALL 8" SDR-35 PVC-SD
56.53 L.F. @ 0.50% SLOPE

INSTALL 12" HP STORM-SD
76.83 L.F. @ 0.50% SLOPE

INSTALL 8" SDR-35 PVC-SD
50.10 L.F. @ 0.50% SLOPE

INSTALL 12" HP STORM-SD
61.21 L.F. @ 0.50% SLOPE

INSTALL 12"X12" YD #286
TOG=4522.70
FL(OUT-S)=4519.84
FL(IN-W)=4519.84

INSTALL SDCO #204
RIM=4524.33
FL(IN-W)=4518.91
FL(OUT-SE)=4518.91
FL(IN-N)=4520.87
FL(IN-S)=4520.61

INSTALL SDCB #207
TOG=4523.94
FL(OUT-S)=4520.95
FL(IN-N)=4520.95

INSTALL SDCB #243
TOG=4522.29
FL(IN-NW)=4518.90
FL(OUT-E)=4518.90
FL(IN-W)=4518.90

INSTALL 12" HP STORM-SD
53.04 L.F. @ 0.50% SLOPE

INSTALL SDCB #237
TOG=4524.38
FL(OUT-S)=4521.28
FL(IN-N)=4521.28

INSTALL SDCB #239
TOG=4527.24
FL(IN-SE)=4523.44
FL(OUT-S)=4523.44
FL(IN-N)=4523.44

INSTALL 18" CLASS III RCP-SD
49.50 L.F. @ 0.89% SLOPE

INSTALL 6" SDR-35 PVC-SD
27.54 L.F. @ 1.00% SLOPE

INSTALL SDCB #208
TOG=4524.02
FL(OUT-N)=4520.70

INSTALL 12" HP STORM-SD 115.68 L.F. @ 1.87% SLOPE

INSTALL SDCB #280
TOG=4523.11
FL(IN-W)=4518.64
FL(OUT-NE)=4518.64
FL(IN-SE)=4518.64

INSTALL 15" CLASS III RCP-SD
18.30 L.F. @ 0.50% SLOPE

INSTALL 15" CLASS III RCP-SD
29.14 L.F. @ 1.13% SLOPE

INSTALL SDCB #210
TOG=4522.33
FL(OUT-E)=4519.65

INSTALL 15" CLASS III RCP-SD
16.50 L.F. @ 0.50% SLOPE

INSTALL 15" CLASS III RCP-SD
68.71 L.F. @ 0.50% SLOPE

INSTALL 15" CLASS III RCP-SD
15.65 L.F. @ 0.53% SLOPE

INSTALL SDCB #205
TOG=4524.26
FL(OUT-E)=4518.30
FL(IN-SW)=4518.30

INSTALL 12"X12" YD #281
TOG=4522.20
FL(OUT-NW)=4518.91
FL(IN-S)=4518.91

INSTALL SDCO #209
RIM=4522.72
FL(IN-N)=4516.96
FL(IN-NE)=4518.61
FL(IN-W)=4519.57
FL(OUT-S)=4516.96

INSTALL SDCO #203
RIM=4524.64
FL(IN-N)=4518.21
FL(OUT-S)=4518.21
FL(IN-E)=4518.21
FL(IN-W)=4518.21

INSTALL 15" CLASS III RCP-SD
16.50 L.F. @ 0.50% SLOPE

INSTALL 15" CLASS III RCP-SD 101.71 L.F. @ 0.35% SLOPE

INSTALL 18" CLASS III RCP-SD 140.00 L.F. @ 0.89% SLOPE

INSTALL 15" CLASS III RCP-SD 90.41 L.F. @ 0.35% SLOPE

INSTALL 15" CLASS III RCP-SD
18.18 L.F. @ 0.50% SLOPE

INSTALL 15" CLASS III RCP-SD
16.50 L.F. @ 0.50% SLOPE

INSTALL SDCO #202
RIM=4525.19
FL(IN-NW)=4518.53
FL(OUT-S)=4518.53

INSTALL SDCB #211
TOG=4522.45
FL(OUT-SW)=4518.70
FL(IN-NE)=4518.70
FL(IN-E)=4518.70

INSTALL 15" CLASS III RCP-SD
70.04 L.F. @ 2.86% SLOPE

INSTALL 15" CLASS III RCP-SD
24.13 L.F. @ 2.00% SLOPE

INSTALL SDCB #206
TOG=4524.26
FL(OUT-W)=4518.30
FL(IN-E)=4521.02

INSTALL SDCB #238
TOG=4528.51
FL(OUT-NW)=4525.50
FL(IN-NE)=4525.50
FL(IN-S)=4525.50

INSTALL 8" SDR-35 PVC-SD
35.81 L.F. @ 0.50% SLOPE

INSTALL 6" SDR-35 PVC-SD
23.73 L.F. @ 0.50% SLOPE

INSTALL SDCB #240
TOG=4524.91
FL(OUT-W)=4521.50

INSTALL 8" SDR-35 PVC-SD
88.69 L.F. @ 0.50% SLOPE

INSTALL 6" SDR-35 PVC-SD
80.43 L.F. @ 1.39% SLOPE

INSTALL SDCB #244
TOG=4524.17
FL(OUT-SW)=4520.71

INSTALL 12"X12" YD #306
TOG=4522.77
FL(OUT-SW)=4519.00

INSTALL 12"X12" YD #302
TOG=4529.50
FL(IN-E)=4525.94
FL(OUT-N)=4525.94

INSTALL 12"X12" YD #307
TOG=4522.15
FL(IN-NE)=4518.88
FL(OUT-W)=4518.88
FL(IN-S)=4518.88

INSTALL 8" SDR-35 PVC-SD
22.16 L.F. @ 0.50% SLOPE

INSTALL 8" SDR-35 PVC-SD
26.74 L.F. @ 0.50% SLOPE

INSTALL 12"X12" YD #317
TOG=4522.77
FL(OUT-S)=4520.83
FL(IN-N)=4520.83

INSTALL 12"X12" YD #301
TOG=4529.10
FL(IN-E)=4526.08
FL(OUT-W)=4526.08

TRENCH DRAIN AROUND POOL DECK.
COORDINATE WITH POOL DESIGNER.

INSTALL 8" SDR-35 PVC-SD
34.00 L.F. @ 0.50% SLOPE
FL=4521.00

INSTALL 6" SDR-35 PVC-SD
23.13 L.F. @ 3.99% SLOPE

INSTALL 6" SDR-35 PVC-SD
12.23 L.F. @ 1.70% SLOPE

INSTALL 12"X12" YD #300
TOG=4529.10
FL(OUT-W)=4527.00

INSTALL 12"X12" YD #328
TOG=4523.32
FL(OUT-E)=4521.00

INSTALL 12"X12" YD #322
TOG=4523.04
FL(OUT-E)=4521.00

INSTALL 6" SDR-35 PVC-SD
13.62 L.F. @ 0.50% SLOPE

INSTALL 12"X12" YD #323
TOG=4524.87
FL(IN-W)=4520.93
FL(OUT-S)=4520.93

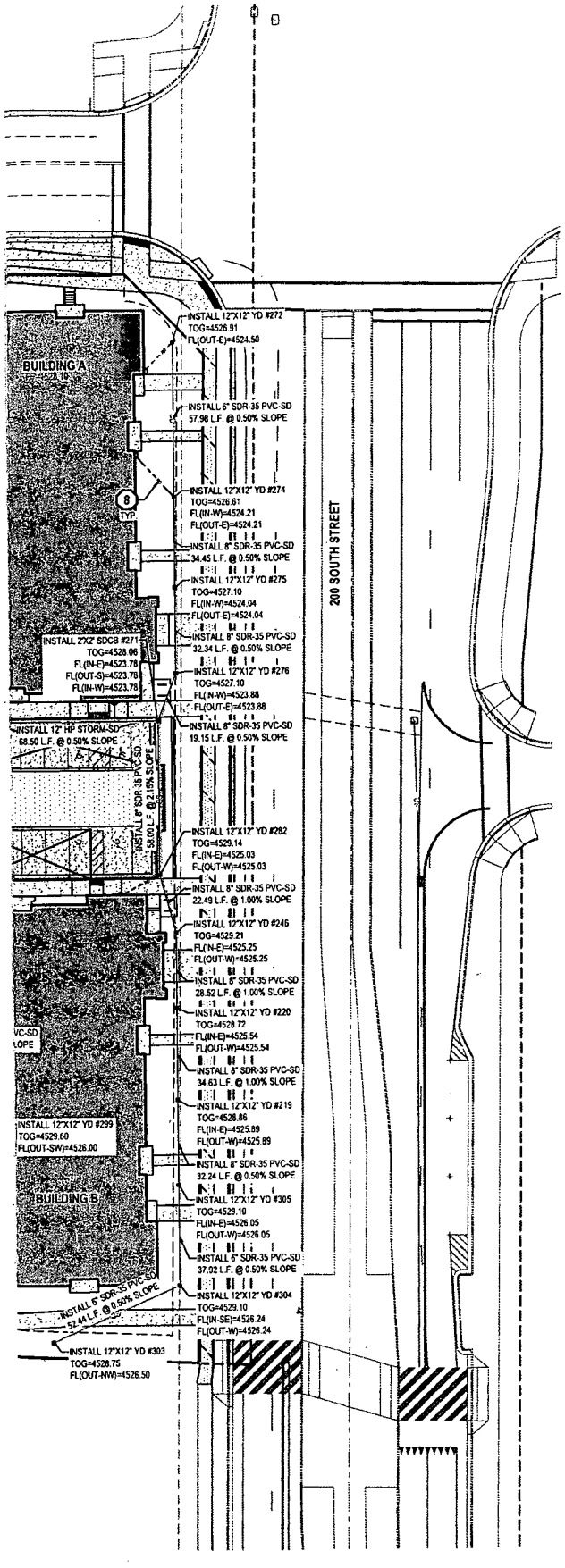
INSTALL 12"X12" YD #324
TOG=4524.47
FL(IN-N)=4520.79
FL(OUT-S)=4520.79
FL(IN-W)=4520.79

INSTALL 6" SDR-35 PVC-SD
28.07 L.F. @ 0.50% SLOPE

INSTALL 6" SDR-35 PVC-SD
85.89 L.F. @ 0.50% SLOPE

SEE DRAWING C-401

ENT 50429:2021 PG 12 of 48



GENERAL NOTES

1. ALL WORK TO COMPLY WITH THE GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
2. ALL IMPROVEMENTS MUST COMPLY WITH ADA STANDARDS AND RECOMMENDATIONS.
3. ALL WORK SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER POSSIBLY INCLUDING, BUT NOT LIMITED TO, REMOVAL OF UNCONSOLIDATED FILL, ORGANICS, AND DEBRIS, PLACEMENT OF SUBSURFACE DRAIN LINES AND GEOTEXTILE, AND OVEREXCAVATION OF UNSUITABLE BEARING MATERIALS AND PLACEMENT OF ACCEPTABLE FILL MATERIAL.
4. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE EXISTING SOIL CONDITIONS.
5. ELEVATIONS HAVE BEEN TRUNCATED FOR CLARITY. XX.XX REPRESENTS AN ELEVATION OF 45XX.XX ON THESE PLANS.
6. LANDSCAPED AREAS REQUIRE SUBGRADE TO BE MAINTAINED AT A SPECIFIC ELEVATION BELOW FINISHED GRADE AND REQUIRE SUBGRADE TO BE PROPERLY PREPARED AND SCARIFIED. SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION.
7. SLOPE ALL LANDSCAPED AREAS AWAY FROM BUILDING FOUNDATIONS TOWARD CURB AND GUTTER OR STORM DRAIN INLETS.
8. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY THE LOCATIONS OF EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED IN THE CONTRACT. THE CONTRACTOR IS TO VERIFY ALL CONNECTION POINTS WITH THE EXISTING UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE EXISTING UTILITIES AND UTILITY STRUCTURES THAT ARE TO REMAIN. IF CONFLICTS WITH EXISTING UTILITIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE IF ANY FIELD ADJUSTMENTS SHOULD BE MADE.
9. ALL STORM DRAIN INFRASTRUCTURE TO BE INSTALLED PER GOVERNING AGENCY OR APWA STANDARD PLANS AND SPECIFICATIONS.
10. ENSURE MINIMUM COVER OVER ALL STORM DRAIN PIPES PER MANUFACTURER'S RECOMMENDATIONS. NOTIFY ENGINEER IF MINIMUM COVER CANNOT BE ATTAINED.
11. ALL FACILITIES WITH DOWNSPOUTS/ROOF DRAINS SHALL BE CONNECTED TO THE STORM DRAIN SYSTEM. SEE PLUMBING PLANS FOR DOWNSPOUT/ROOF DRAIN LOCATIONS AND SIZES. ALL ROOF DRAINS TO HAVE MINIMUM 1% SLOPE.
12. THE CONTRACTOR SHALL ADJUST TO GRADE ALL EXISTING UTILITIES AS NEEDED PER LOCAL GOVERNING AGENCY'S STANDARDS AND SPECIFICATIONS.
13. NOTIFY ENGINEER OF ANY DISCREPANCIES IN DESIGN OR STAKING BEFORE PLACING CONCRETE, ASPHALT, OR STORM DRAIN STRUCTURES OR PIPES.
14. THE CONTRACTOR IS TO PROTECT AND PRESERVE ALL EXISTING IMPROVEMENTS, UTILITIES, AND SIGNS, ETC. UNLESS OTHERWISE NOTED ON THESE PLANS.
15. ALL UNDERGROUND UTILITIES MUST BE INSPECTED AND APPROVED BY THE CITY INSPECTOR BEFORE TRENCH BACKFILLING IS COMPLETED.
16. STORM DRAIN DESIGN IS BASED ON GROUNDWATER INFORMATION OBTAINED FROM GEOTECHNICAL ENGINEERING REPORT - SEE GROUNDWATER EXHIBIT ON C-701. IF GROUNDWATER IS ENCOUNTERED WITHIN EXCAVATION AREA FOR STORMTECH CHAMBERS DURING CONSTRUCTION, CONTACT ENGINEER OF RECORD FOR RECOMMENDATIONS.

SCOPE OF WORK:

PROVIDE, INSTALL AND/OR CONSTRUCT THE FOLLOWING PER THE SPECIFICATIONS GIVEN OR REFERENCED, THE DETAILS NOTED, AND/OR AS SHOWN ON THE CONSTRUCTION DRAWINGS:

1. 12" PVC INLINE DRAIN WITH SLOTTED GRATE AND 6" OUTLET RISER, INCLUDING ALL FITTINGS PER DETAIL 15/C-700. INSTALL PER MANUFACTURER'S SPECIFICATIONS. EXTEND END OF 6" SPOOL 1' ABOVE PROPOSED TOP OF GRATE ELEVATION. ADJUST GRATE TO APPROPRIATE FINAL ELEVATION PER PLANS AND LANDSCAPE TREATMENT.
2. 6.24" DIAMETER ORIFICE PLATE PER DETAIL 18/C-700 INSTALLED ON WEST SIDE OF STORM DRAIN BOX.
3. UNDERGROUND CHAMBER SYSTEM. SEE STORMTECH CHAMBER DETAILS ON SHEET C-701.
   564 TOTAL STORMTECH SC-740 CHAMBERS
   STORAGE REQUIRED = 43,844 CU. FT.
   STORAGE PROVIDED = 43,872 CU. FT.
4. BASIN #01 - 147 CHAMBERS
   TOP OF GRAVEL = 4518.64
   TOP OF CHAMBERS = 4518.14
   BOTTOM OF CHAMBERS = 4515.64
   BOTTOM OF GRAVEL = 4515.14
5. BASIN #02 - 176 CHAMBERS
   TOP OF GRAVEL = 4518.64
   TOP OF CHAMBERS = 4518.14
   BOTTOM OF CHAMBERS = 4515.64
   BOTTOM OF GRAVEL = 4515.14
6. BASIN #03 - 241 CHAMBERS
   TOP OF GRAVEL = 4518.73
   TOP OF CHAMBERS = 4518.23
   BOTTOM OF CHAMBERS = 4515.73
   BOTTOM OF GRAVEL = 4515.23
7. 4' CONTECH CDS PRETREATMENT DEVICE. SEE CONTECH CDS STANDARD DETAIL ON SHEET C-701.
8. 4" SDR-35 PVC @ 0.50% MINIMUM SLOPE ROOF DRAIN CONNECTION. CONNECT TO STORM DRAIN BOX, PIPE, OR CHAMBER SYSTEM. USE INSERT-A-TEE'S AS NEEDED FOR CONNECTIONS. SEE PLUMBING PLANS FOR CONTINUATION INTO BUILDING.

ENSIGN
THE STANDARD IN ENGINEERING

SALT LAKE CITY
45 W. 10000 S., Suite 500
Sandy, UT 84070
Phone: 801.255.0529

LAYTON
Phone: 801.547.1100

TOOELE
Phone: 435.843.3590

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FOR:
DUAINE RASMUSSEN
6740 SOUTH 1300 EAST, STE 200
SALT LAKE CITY, UTAH, 84121
CONTACT:
DUAINE RASMUSSEN
PHONE: 801-000-0000

CASTLEWOOD AMERICAN FORK APTS

900 WEST 200 SOUTH
AMERICAN FORK, UTAH

LICENSED PROFESSIONAL ENGINEER
No. 7675714-2202
JARED K. FORD
9-10-2020
STATE OF UTAH

DRAINAGE PLAN

PROJECT NUMBER	PRINT DATE
8618B	9/4/20
DRAWN BY	CHECKED BY
E. FISHER	J. FORD
PROJECT MANAGER	
J. FORD	

C-402

EXHIBIT C

Long-Term Stormwater Management Plan

for:

Castlewood Apartments
900 West 200 South
American Fork City, Utah, 84003

PURPOSE AND RESPONSIBILTY

As required by the Clean Water Act and resultant local regulations, including American Fork City Municipal Separate Storm Sewer Systems (MS4) Permit, those who develop land are required to build and maintain systems to minimize litter and contaminants in stormwater runoff polluting waters of the State.

This Long-Term Stormwater Management Plan (LTSWMP) describes the systems, operations and the minimum standard operating procedures (SOPs) necessary to manage pollutants originating from or generated on this property. Any activities or site operations at this property contaminating water entering the City's stormwater system and generate loose litter must be prohibited, unless SOPs are written to manage those activities or operations, and amended into this LTSWMP.

The project's stormwater discharges into an underground detention system with a controlled outflow rate and pretreatment prior to being released into the adjacent public street storm drain infrastructure. The stormwater is then routed to other existing infrastructure discharging into ditches and eventually finds its way to Utah Lake. Based on information provided by the Utah Department of Environmental Quality Utah Lake is identified as being impaired due to excess total phosphorus. The LTSWMP is aimed at addressing these impairments in addition to all other pollutants potentially generated by this property.

CONTENTS

SECTION 1: SITE DESCRIPTION, USE AND IMPACT

The site infrastructure at our site is limited at controlling and containing pollutants and our operations if managed improperly can contaminate the environment. This LTSWMP includes standard operations procedures (SOP)s intended to compensate for the pollution containment limitations of our site infrastructure and direct our maintenance operations to responsibly manage our grounds.
If, or when, SOPs change or are updated the city will be notified.

Parking, Sidewalk and flatwork

The site consists of public roads, private drive aisles, parking areas, and sidewalks tying to proposed buildings. These hardscape surfaces if not kept property clean can impact stormwater quality.

Any sediment, leaves, debris, spilt fluids or other waste collecting on the roads, drive aisles, our parking lots and sidewalks will be carried by runoff to storm drain inlets. This waste material will settle in our storm drain system increasing maintenance cost and solid and dissolved waste in our runoff can pass through our system ultimately polluting Utah Lake.

Maintenance involves regular sweeping, but it can also involve pavement washing to remove stains, slick spots and improve appearance when necessary. Use our Pavement Maintenance and the Pavement Washing SOPs to manage pollutants collecting on our pavements.

Landscaping

Our landscape operations can result in grass clippings, sticks, branches, dirt, mulch, fertilizers, pesticides and other pollutants to fall onto or be left on our paved areas. This waste material will settle in our storm drain system increasing maintenance cost and solid and dissolved waste in our runoff can pass through our storm drain system ultimately polluting Utah Lake. The primary pollutant impairing Utah Lake is organic material so it is vital our paved areas with direct connection to the City storm drain systems remain clean of landscape debris. Use our Landscape Maintenance SOP to prevent this potential pollution source from affecting the Utah Lake.

Storm Drain System

The storm drain inlets direct all runoff to underground detention basin pretreatment isolation rows and a pretreatment device prior to being discharged to the public system. These pretreatment systems are designed to capture floating material, heavier sediment particles, and hydrocarbons, but does not trap suspended or dissolved pollutants and are susceptible to bypass during large storm events. The public system is eventually routed through to Utah Lake where the dissolved pollutants can pass through the pretreatment devices harming Utah Lake. It is important to regularly maintain this system to protect Utah Lake. Use our Storm Drain Maintenance SOP to manage our storm drain system responsibly.

Waste Management

The buildings within the project will share dumpsters located throughout the site. Good waste management systems, if managed improperly, can become the source of the very pollution they were intended to control. Use our Waste Management SOP to control and manage the solid waste we generate.

Snow and Ice Removal Management

Salt is a necessary pollutant and is vital to ensuring safe parking and pedestrian walkways. However, the snow removal operations if improperly managed will increase our salt impact to our own vegetation and local water resources. Use our Snow and Ice Removal SOP to minimize our salt impact.

SECTION 2: TRAINING

Ensure all employees and maintenance contractors know and understand the SOPs specifically written to manage and maintain the property. Maintenance contractors must use the stronger of their Company and the LTSWMP SOPs. File all training records in Appendix D.

SECTION 3: RECORDKEEPING

Maintain records of operation and maintenance activities in accordance with SOPs. Mail a copy of the record to American Fork City Stormwater Division annually.

SECTION 4: CONTACT INFORMATION.

Apartment Management
Castlewood Apartment Management
201 South 900 West
American Fork, Utah, 84003

Contact: TBD

Developer
Castlewood Development
6740 South 1300 East, Suite 200
Salt Lake City, Utah, 84121

Contact: Duaine Rasmussen
duaine@castlewooddevelopment.com

SECTION 5: APPENDICES

Appendix A- Site Drawings and Details
Appendix B- SOPs
Appendix C- Contech CDS System and Stormtech Isolator Row Operation and Maintenance Manuals
Appendix D- Recordkeeping Documents

APPENDIX A – SITE DRAWINGS AND DETAILS

APPENDIX B – SOPs

Pavement Maintenance Operations

General:
These SOPs are not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in these SOPs.

1. Purpose and Selection:

a) Reduce stormwater pollution by sweeping and removing pollutants that will be carried to City stormwater systems during stormwater runoff or by non-stormwater runoff.
b) The sweeper is intended for removing material collecting on pavements by use and the natural degradation of pavements, ie. material that collects, drop from vehicles and the natural erosion and breaking up of pavements.

2. Regular Procedure:

a) Remain aware of debris and sweep minor debris as needed by hand.
b) Generally sweeping machinery should be used during autumn when leaf fall is heavy and early spring after winter thaw. Sometimes sweeping machinery will be necessary when accumulations are spread over a large area of the pavement.
c) Private drive aisles, parking lots, and other hardscape areas will be swept.
d) Manage outside activities that leave waste or drain pollutants to our pavements. This involves outside functions including but not limited to: Yard sales, yard storage, fund raisers, etc. Do not allow car wash fund raisers or other activities allowing detergents or other pollutants to be washed into storm drain systems.

4. Disposal Procedure:

a) Service contractor dispose at licensed facilities
b) Dispose of hand collected material in dumpster

5. Training:

a) Annually and at hire

Landscape Maintenance Operations

General:
This SOP is not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in this SOP.

Rule: Prevent any solids, liquids or any light weight material from being carried away from the construction or maintenance envelope by wind or water.

1. Application:

a) This SOP should provide sufficient direction for many of the general landscaping operations, e.g., fertilizer and pesticide applications, mowing, weeding, tree trimming, digging, sprinkler repairs, varying landscape cover management, etc.

2. Maintenance Procedure:

a) Grooming
- Lawn Mowing – Immediately following operation sweep or blow clippings onto vegetated ground or gather and dispose properly.
- Fertilizer Operation – Prevent overspray. Sweep or blow fertilizer onto vegetated ground immediately following operation.
- Pesticide Operations – Prevent overspray, use spot treatment, sweep or blow dry pesticide onto vegetated ground immediately following operation.

b) Remove or contain all erodible or loose material prior to forecasted wind and precipitation events, before any non-stormwater passing through and over the project site and at end of work period. Light weight debris and landscape materials can require immediately attention when wind is expected.

c) Landscape project materials and waste can usually be contained or controlled by operational best management practices.
- Operational; including, but not limited to:
  - Strategic staging of materials eliminating exposure, such as not staging on pavement
  - Avoiding multiple day staging of landscaping backfill and spoil on pavements
  - Haul off spoil as generated or daily
  - Scheduling work when weather forecast is clear

d) Cleanup:
- Use dry cleanup methods, e.g. square nose shovel and broom and it is usually sufficient when no more material can be swept onto the square nosed shovel.
- Power blowing tools

3. Waste Disposal:

a) Dispose of waste according to General Waste Management SOP, unless superseded by specific SOPs for the operation.

4. Equipment:

a) Tools sufficient for proper containment of pollutants and cleanup.
b) Push broom and square blade shovel should be a minimum.

5. Training:

a) Annually and at hire
b) Landscape Service Contractors must have equal or better SOPs.

Waste Management Operations

General:
This SOP is not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in this SOP.

1. Application:

a) This SOP is intended for all Staff, intended for the proper disposal of common everyday waste.

2. Waste Collection.

a) Regularly inspect and look for garbage, trash, and debris on-site including the grounds. Collect and properly dispose of it.
b) At winter time, inspection and collection will be done at fall during winterization and at spring time when the first cut occurs. The rest of the time it will be done weekly at same time as the cutting.

3. Waste Collection Devices (Exposed units):

a) The site contains 1 type of waste management containers.
   - 4+ cubic yard dumpster with lid

4. Waste Disposal Restrictions for all waste Scheduled for the Intermountain Regional Landfill:

a) Generally, most waste generated at this property, and waste from spill and clean-up operations can be disposed in our dumpsters under the conditions listed in this SOP. Unless other disposal requirements are specifically identified by the product SDS or otherwise specified in other SOPs.
b) Know the facility disposal requirements and restrictions. It should not be assumed all waste disposed in collection devices will be disposed at the Intermountain Regional Landfill.
c) Review Intermountain Regional Landfill regulations for additional restrictions and understand what waste is prohibited in the Intermountain Regional Landfill. Ensure the SDS and Intermountain Regional Landfill regulations are not contradictory.

   Generally, the waste prohibited by the Intermountain Regional Landfill is:

   ➢ Liquid:
      - paint
      - pesticides/fertilizers
      - oil (all types)

- antifreeze
- batteries
- liquid chemicals
- etc.

  (Generally, *all the above hazardous waste when involved in minor spill cleanup operations can be disposed in covered dumpsters and our waste bays, if the liquid is contained in absorbent material, e.g. sand, dirt, loose absorbent, pads, booms etc., and transformed or dried such that it will not drip. This is not intended for whole sale disposal of out dated or spent liquid hazardous waste. When disposal of out dated or spent liquid is needed or for questions of how to dispose of other waste, contact the Utah County Health Department for instructions and locations, (801-851-7331).*

5. Waste Disposal Required for Intermountain Regional Landfill or other:

a) Generally, for waste not accepted by the Intermountain Regional Landfill.

b) Follow SDS for disposal requirements. Review Intermountain Regional Landfill regulations for additional restrictions and understand what waste is prohibited in the Intermountain Regional Landfill. Ensure the SDS and Intermountain Regional Landfill regulations are not contradictory

   General rules are:

   - Get approval prior to delivery.
   - Transport waste in clearly labeled secure leak proof containers.

c) Lookup and follow disposal procedures for disposal of waste at other EPA approved sites, the Intermountain Regional Landfill # is a good resource, (801) 930-0984

6. General Staff Maintenance Practices:

a) Prevent dumpsters and receptacles from becoming a pollution source by:
   1. Closing lids
   2. Reposition tipped receptacles upright.
   3. Report full or leaking and unsecured dumpsters and receptacles to the company provider or repair it in house. Determine source liquids and prevent it.
   4. Report any eminent pollutant hazard related to dumpsters and receptacles to the owner.

6. Training:

a) Annually and at hire

Storm Drain Maintenance Operations

General:
These SOPs are not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in these SOPs.

1. Procedure:

a) Inspect for need:
   1. Schedule cleaning for boxes and pipe that contain 2" or more of sediment and debris.
   2. Remove debris by vacuum Intermountain Regional Landfill operated machinery.
   3. When accumulations are mostly floating debris this material can be removed with a net.
   4. Inspect standing water for mosquito larvae and contact Utah County Health Department – Mosquito Abatement when necessary.
   5. Inspect at time of winterization.

2. Disposal Procedure:

a) Dispose of waste collected by machinery at regulated facilities.
b) Floating materials and floating absorbent materials may be disposed in dumpster when dried out. Dry dirt and slurry may also be disposed in the dumpster.
c) Disposal of hazardous waste
   1. Dispose of hazardous waste at regulated disposal facilities, see Waste Management and Spill Control SOP
d) Disposal of waste collected from storm drain devices at regulated facilities. See *Appendix C* for manufacturer's recommendations.
   1. Contech CDS Stormwater Treatment System is installed with this development and the recommended maintenance practice for the Contech CDS System is to plan on quarterly inspections and an annual pump-out.
   2. Stormtech underground detention chambers and isolation rows are installed with this development and the recommended maintenance practice for the isolation rows is to plan on quarterly inspections and an annual wash-out and pump-out.
   3. Storm drain junction boxes with sumps are installed with this development and the recommended maintenance practice for boxes and sumps is to plan on quarterly inspections and an annual pump-out.

3. Training:

a) Annually and at hire

Pavement Washing Operations

General:
These SOPs are not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in these SOPs.

1. Procedure:

a) Prevent waste fluids and any detergents if used from entering storm drain system. The following methods are acceptable for this operation.
   - Dam the inlet using a boom material which seals itself to the pavement and pick up the wastewater with shop-vacuum or absorbent materials.
   - Collect wastewater with shop-vacuum simultaneous with the washing operation.
   - Collect wastewater with vacuum truck or trailer simultaneous with the washing operation.

b) This procedure must not be used to clean the initial spills. First apply the Spill Containment and cleanup SOP.

2. Disposal Procedure:

a) Small volumes can usually be drained to the local sanitary sewer. Contact the Timpanogos Special Service District.
b) Large volumes must be disposed at regulated facilities.

2. Pavement Cleaning Frequency:

a) There is no regular pavement washing regimen. Pavement washing is determined by conditions that warrant it, including but not limited to: prevention of slick or other hazardous conditions or restore acceptable appearance of pavements.

3. Training:

a) Annually and at hire

Snow and Ice Removal Management

General:
This SOP is not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in this SOP.

1. Application:

a) Parking and sidewalk winter management operations.

2. De-Icing Procedure:

a) Do not store or allow salt or equivalent to be stored on outside paved surfaces. Storage of salt or other de-icing agents will be the responsibility of the snow and ice service contractor.
b) Minimize salt use by varying salt amounts relative to hazard potential.
c) Sweep excessive piles left by the spreader.
d) Store snow in designated snow storage easements per TOD code. See *Appendix A – Site drawings and details* for location of snow storage easements.
e) Watch forecast and adjust salt amounts when warm ups are expected the same day.

3. Training:

a) Annually and at hire.
b) Require snow and ice service contractors to follow the stronger of this SOP and their company SOPs.

General Construction Maintenance

General:
This SOP is not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in this SOP.

Rule: Prevent any solids, *liquids or any light weight material from being carried away from the construction or maintenance envelope by wind or water.

***liquids - including culinary water and irrigation water that are polluted with material that will damage the environment.**

1. Application:

a) This SOP should provide sufficient direction for many of the general operations, e.g., building maintenance, curb/sidewalk/flatwork, overlay/patching, landscape renovations, misc. maintenance/repairs, etc.

2. Construction Procedure:

a) Remove or contain all erodible or loose material prior to forecasted wind and precipitation events or before non-stormwater will pass through the project site. For light weight debris maintenance can require immediate attention for wind events and many times daily maintenance or as needed for precipitation or non-stormwater events.

b) Project materials and waste can be contained or controlled by operational or structural best management practices.

- Operational; including but not limited to:
  - Strategic staging of materials eliminating exposure, such as not staging on pavement
  - Avoiding multiple day staging of backfill and spoil
  - Haul off spoil as generated or daily
  - Schedule work during clear forecast
- Structural; including but not limited to:
  - Inlet protection, e.g. wattles, filter fabric, drop inlet bags, boards, planks
  - Gutter dams, e.g. wattles, sandbags, dirt dams
  - Boundary containment, e.g. wattles, silt fence
  - Dust control, e.g. water hose,
  - Waste control, e.g. construction solid or liquid waste containment, dumpster, receptacles

c) Inspect often to ensure the structural best management practices are in good operating condition and at least prior to the workday end. Promptly repair damaged best management practices achieving effective containment.
d) Cleanup:
   - Use dry cleanup methods, e.g. square nose shove and broom.
   - Wet methods are allowed if wastewater is prevented from entering the stormwater system, e.g. wet/dry vacuum, disposal to our landscaped areas.
e) Cleanup Standard:
   - When a broom and a square nosed shovel cannot pick any appreciable amount of material.

3. Waste Disposal:

a) Dispose of waste according to General Waste Management SOP, unless superseded by specific SOPs for the operation.
b) Never discharge waste material to storm drains

4. Equipment:

a) Tools sufficient for proper containment of pollutants and cleanup.
b) Push broom and square blade shovel should be a minimum.

5. Training:

b) Annually and at hire.

Spill Control

General:

This SOP is not expected to cover all necessary procedure actions. Operators are allowed to adapt SOPs to unique site conditions in good judgment when it is necessary for safety, and the proper, and effective containment of pollutants. However, any changes of routine operations must be amended in this SOP.

1. Rational:

a) All properties are susceptible to spills whether it is a result of operations or by customers. Insufficient response, inadequate containment materials and improper spill cleanup methods will result in pollutants in our waterways. Once the pollutants reach our storm drain system, or even the detention pond, they are difficult and expensive to remove.

2. Containment Procedure:

a) Priority is to dam and contain flowing spills.
b) Use spill kits booms if available or use any material available; including but not limited to, nearby sand, dirt, landscaping materials, etc.
c) Hazardous or unknown waste material spills
    1. Critical Emergency constitutes large quantities of flowing uncontained liquid affecting areas with people or reaching storm drain systems. Generally, burst or tipped tanks. Call HAZMAT, Department of Water Quality, Utah County Health Department, and American Fork City.
    2. Minor Emergency constitutes a spill which has reached a storm drain but is no longer flowing. Call Utah County Health Department, American Fork City
    3. Spills contained on the surface and not meeting the criteria for Critical and minor emergencies may be managed by the responsible implementation of this SOP.
    4. Contact Numbers:
    HAZMAT - 911
    Department of Water Quality – 801-231-1769, 801-536-4123
    Utah County Health Department – (801) 851-7000
    American Fork City – (801) 763-3000

3. Cleanup Procedure:

a) NEVER WASH SPILLS TO THE STORM DRAIN SYSTEMS.
b) Clean per SDS requirements but generally most spills can be cleaned up according to the following:
    - Absorb liquid spills with spill kit absorbent material, sand or dirt until liquid is sufficiently converted to solid material.

- Remove immediately using dry cleanup methods, e.g. broom and shovel, or vacuum operations.
- Cleanup with water and detergents may also be necessary depending on the spilled material. However, the waste from this operation must be vacuumed or effectively picked up by dry methods. See Pavement Washing SOP.
- Repeat process when residue material remains.

4. DISPOSAL:

a) Follow SDS requirements but usually most spills can be disposed per the following: b. & c.
b) Generally, most spills absorbed into solid forms can be disposed to the dumpster and receptacles. Follow Waste Management SOP.
c) Generally, liquid waste from surface cleansing processes may be disposed to the sanitary sewer system after the following conditions have been met:
   - Dry cleanup methods have been used to remove the bulk of the spill and disposed per the Waste Management SOP.
   - The liquid waste amounts are small and diluted with water. This is intended for spill cleanup waste only and never for the disposal of unused or spent liquids.

5. Documentation:

a) Document all spills in Appendix C.

6. SDS sheets:

a) SDS Manual is filed in break room.

7. Materials:

a) Generally, sand or dirt will work for most clean-up operations and for containment. However, it is the responsibility of the owner to select the absorbent materials and cleanup methods required by the SDS Manuals for chemicals used by the company.

8. Training:

a) Annually and at hire.

APPENDIX C – CONTECH CDS SYSTEM AND STORMTECH DETENTION CHAMBERS OPERATION AND MAINTENANCE MANUALS

CONTECH®
ENGINEERED SOLUTIONS

CDS® Inspection and Maintenance Guide

CDS TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

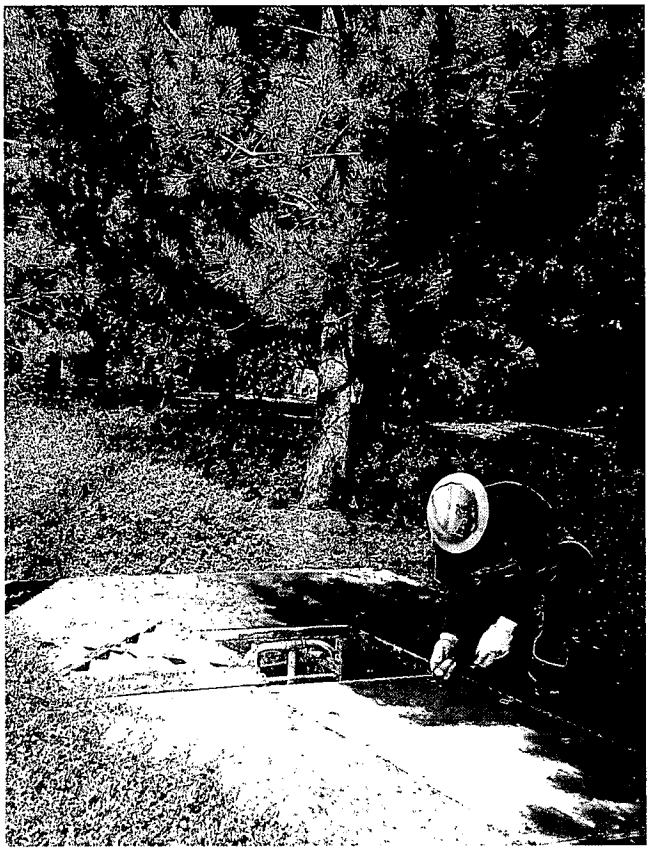
The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.



CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.3	3.0	0.9	1.3	1.0
CDS2020	5	1.3	3.5	1.1	1.3	1.0
CDS2025	5	1.3	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, earth stabilization and wastewater treament products. For information, visit www.ContechES.com or call 800.338.1122

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; 7,296,692; 7,297,266; 7,517,450 related foreign patents or other patents pending.

CONTECH
ENGINEERED SOLUTIONS
800.925.5240
www.ContechES.com

CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

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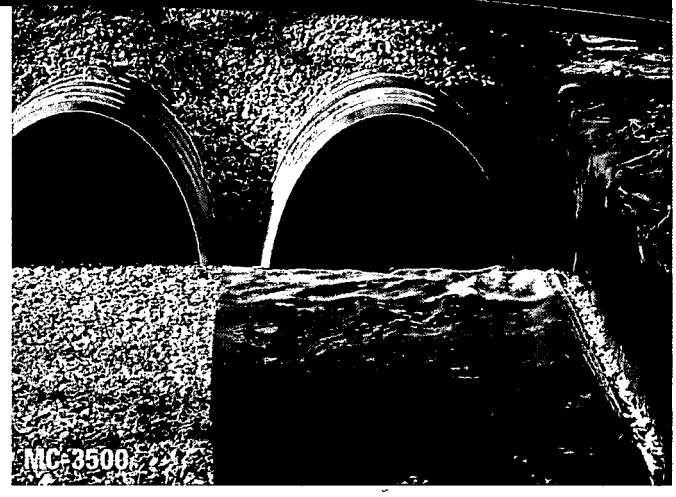
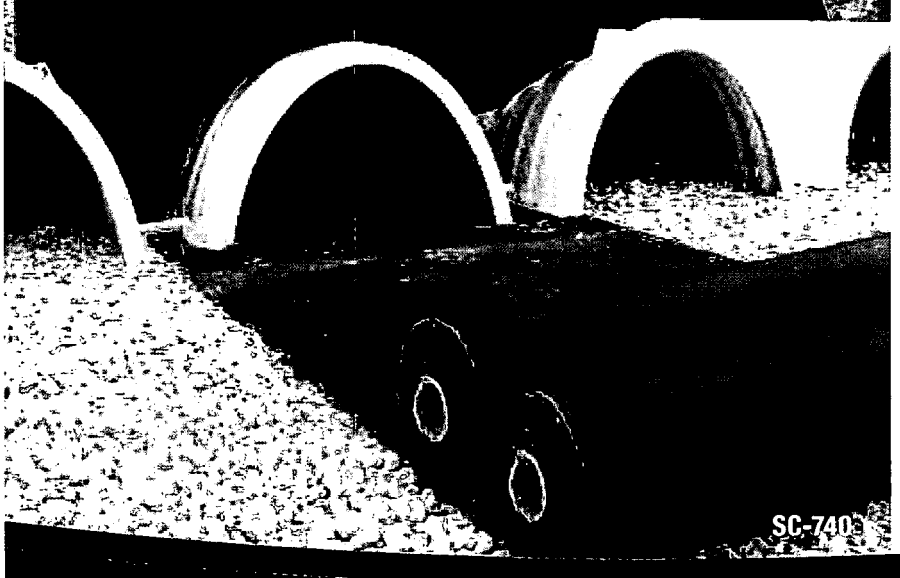
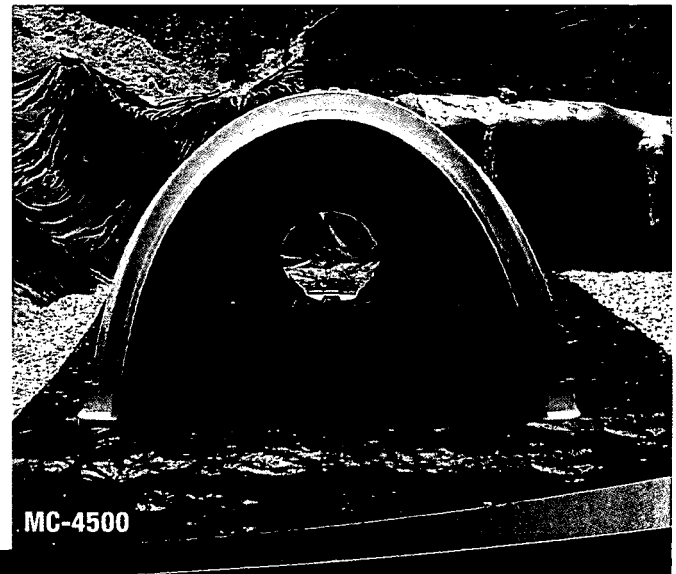
An ADS company

Isolator® Row O&M Manual







THE MOST ADVANCED NAME IN WATER MANAGEMENT SOLUTIONS™

ADS®

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

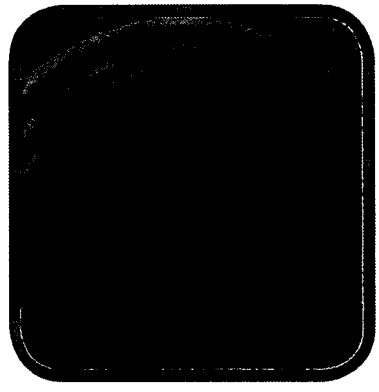
A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the "first flush" and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole provides access to the Isolator Row and typically includes a high flow weir. When flow rates or volumes exceed the Isolator Row weir capacity the water will flow over the weir and discharge through a manifold to the other chambers.

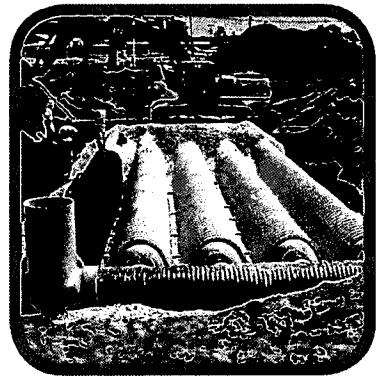
Another acceptable design uses one open grate inlet structure. Using a "high/low" design (low invert elevation on the Isolator Row and a higher invert elevation on the manifold) an open grate structure can provide the advantages of the Isolator Row by creating a differential between the Isolator Row and manifold thus allowing for settlement in the Isolator Row.

The Isolator Row may be part of a treatment train system. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

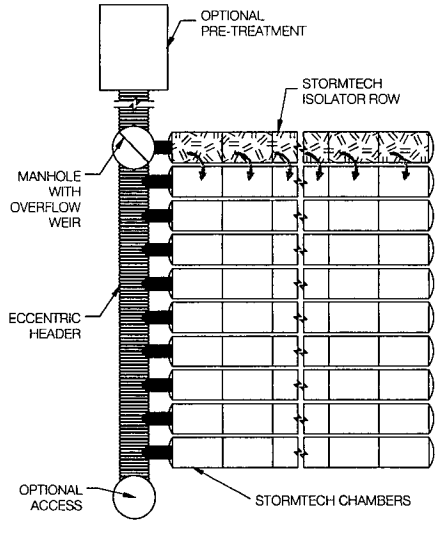
Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.

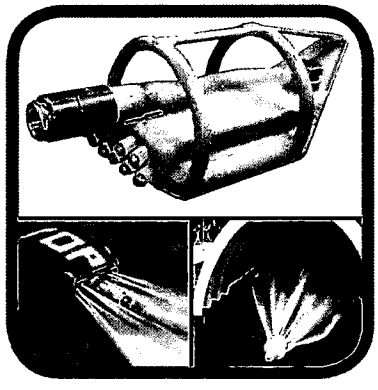


Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.



StormTech Isolator Row with Overflow Spillway (not to scale)





ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

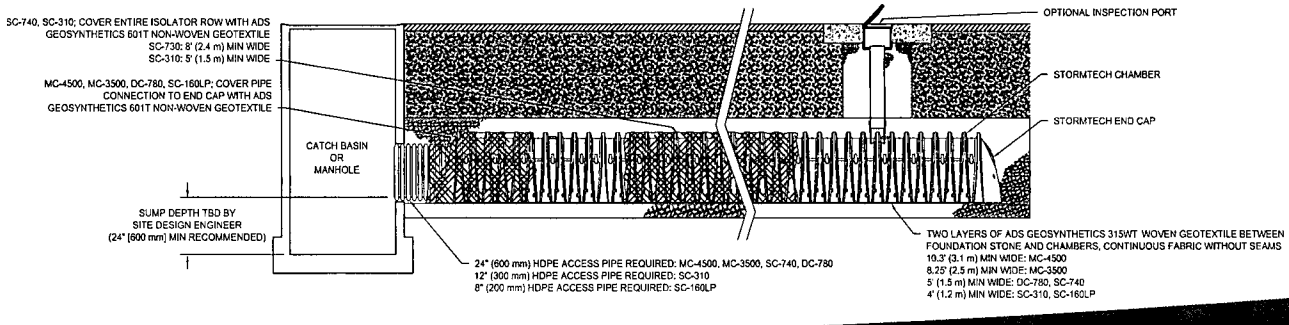
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.



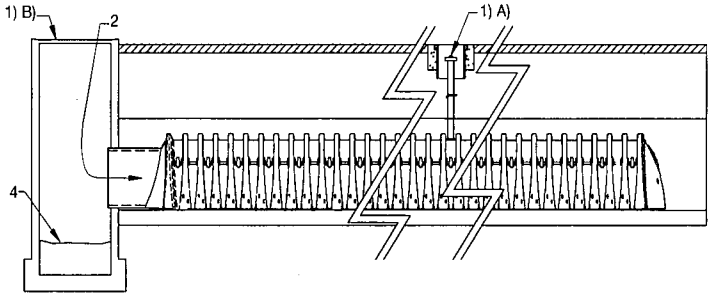
ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1
Inspect Isolator Row for sediment.
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2
Clean out Isolator Row using the JetVac process.
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3
Replace all caps, lids and covers, record observations and actions.

STEP 4
Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

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4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

Exhibit C

Approved as to form:
Attorney for American Fork City

APPENDIX C – CONTECH CDS SYSTEM AND STORMTECH DETENTION CHAMBERS OPERATION AND MAINTENANCE MANUALS

APPENDIX D – PLAN RECORDKEEPING DOCUMENTS

MAINTENANCE/INSPECTION SCHEDULE

Frequency	Site Infrastructure
	Replace text with the infrastructure / system that must be maintained; repeat

Inspection Frequency Key: A=Annual, Q=Quarterly, M=Monthly, W=Weekly, S=Following appreciable storm event, U=Unique infrastructure specific (specify)

RECORD INSPECTIONS IN THE MAINTENANCE LOG

Inspection Means: Either; Traditional walk through, Awareness/Observation, and during regular maintenance operations while noting efficiencies/inefficiencies/concerns found, etc.

MAINTENANCE LOG

Date	Maintenance Performed/Spill Events. Perform Maintenance per SOPs	Observation Notes, including but not limited to: Inspection results, Observations, System Performance (effectiveness/inefficiencies), SOP Usefulness, Concerns, Necessary Changes.	Initials

Annual Summary of LTSWMP effectiveness, inefficiencies, problems, necessary changes etc.

*You may create your own form that provides this same information or request a word copy of this document.

Annual SOP Training Log per Section 2

SOP	Trainer	Employee Name / Maintenance Contractor Co	Date

*You may create your own form providing this same information or request a word copy of this document.