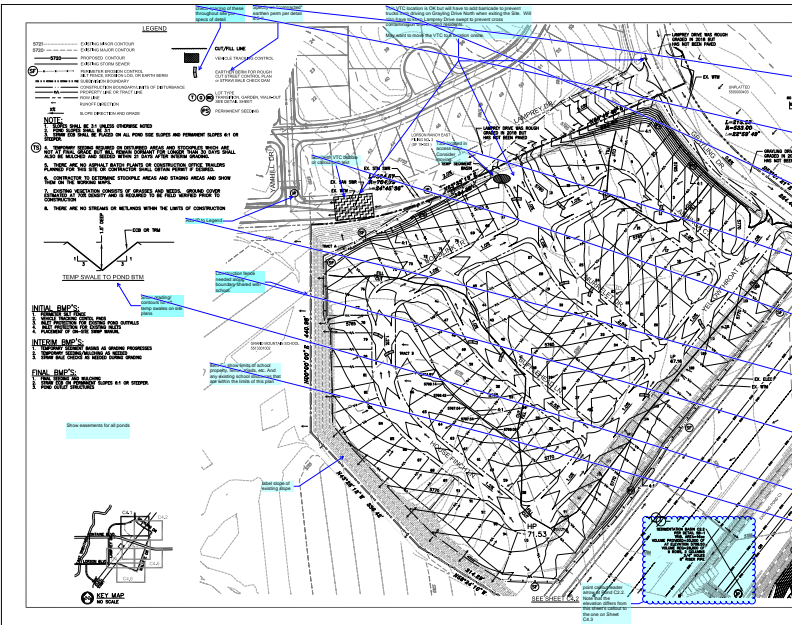




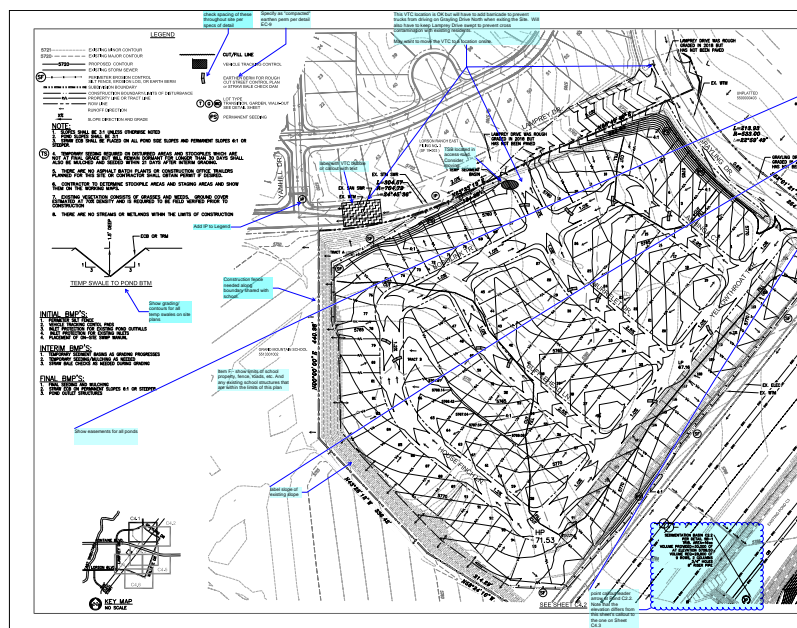
Author: dotreesee	Subject: Cloud+	Date: 8/11/2020 3:47:51 PM
Match text in Item HH of GEC Checklist		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:01:14 AM
TEXT UPDATED		
Author: dotreesee	Subject: Engineer	Date: 8/11/2020 3:49:12 PM
"AS AMENDED"		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:02:34 AM
TEXT ADDED		
Author: dotreesee	Subject: Engineer	Date: 8/11/2020 3:52:54 PM
Fix duplicates and typo's		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:02:24 AM
REMOVED AND UPDATED		
Author: dotreesee	Subject: Highlight	Date: 8/11/2020 3:52:19 PM
Author: dotreesee	Subject: Highlight	Date: 8/11/2020 3:52:21 PM
Author: dotreesee	Subject: Highlight	Date: 8/11/2020 3:52:24 PM
Author: dotreesee	Subject: Cloud+	Date: 8/11/2020 3:45:32 PM
revise last sentence to match Engineer's Statement in GEC Checklist		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:01:25 AM
SENTENCE UPDATED		
Author: dotreesee	Subject: Cloud+	Date: 8/11/2020 11:07:26 AM
Revision to: EGP-20-005		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 9:58:54 AM
REVISED		



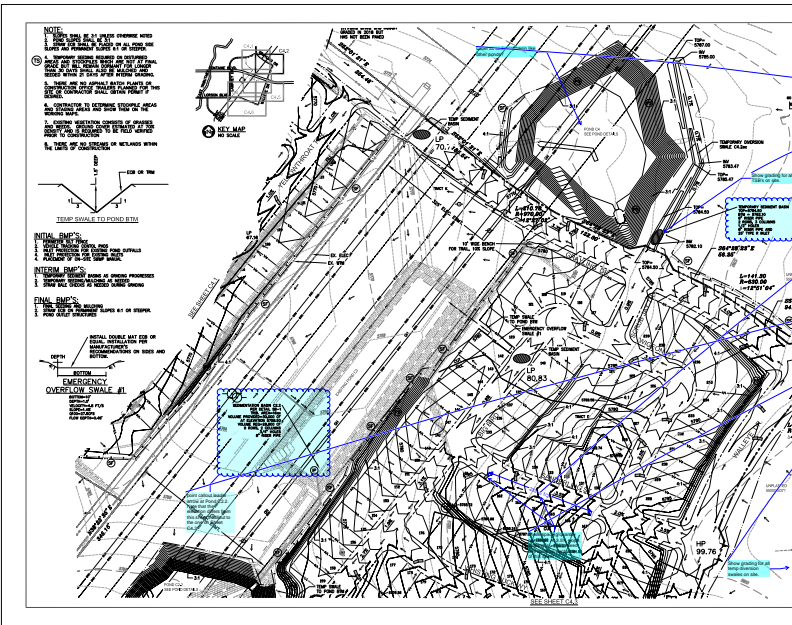
Page: 4

Author: dotreese	Subject: Engineer	Date: 8/17/2020 8:51:10 AM
Specify as 'compacted' earthen perm per detail EC-9		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:30:45 AM
TEXT ADDED		
Author: dotreese	Subject: Engineer	Date: 8/11/2020 3:09:11 PM
check spacing of these throughout site per specs of detail		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 11:23:37 AM
ADDED MORE THROUGHOUT SITE		
Author: dotreese	Subject: Engineer	Date: 8/17/2020 8:51:21 AM
This VTC location is OK but will have to add barricade to prevent trucks from driving on Grayling Drive North when exiting the Site. Will also have to keep Lamprey Drive swept to prevent cross contamination with existing residents. May want to move the VTC to a location onsite.		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:11:30 AM
GRAYLING ROAD ENDS 200' NORTH WITH NO OUTLET. NO TRUCKS WILL DRIVE NORTH		
Author: dotreese	Subject: Engineer	Date: 8/13/2020 3:56:50 PM
TSB located in access road. Consider moving.		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:31:41 AM
MOVED TO EX INLET ON LAMPREY		
Author: dotreese	Subject: Engineer	Date: 8/11/2020 11:19:26 AM
label with VTC bubble or callout with text		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 11:13:45 AM
BUBBLE ADDED		
Author: dotreese	Subject: Engineer	Date: 8/11/2020 3:23:56 PM
Add IP to Legend		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:36:27 AM
ADDED		
Author: dotreese	Subject: Engineer	Date: 8/13/2020 5:21:20 PM
Construction fence needed along boundary shared with school.		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 10:35:38 AM
FENCING ADDED		
Author: dotreese	Subject: Engineer	Date: 8/17/2020 8:52:15 AM
Show grading/ contours for all temp swales on site plans		
Author: dotreese	Subject: Engineer	Date: 8/11/2020 1:19:12 PM
Item F - show limits of school property, fence, roads, etc. And any existing school structures that are within the limits of this plan		

Comments from page 4 continued on next page

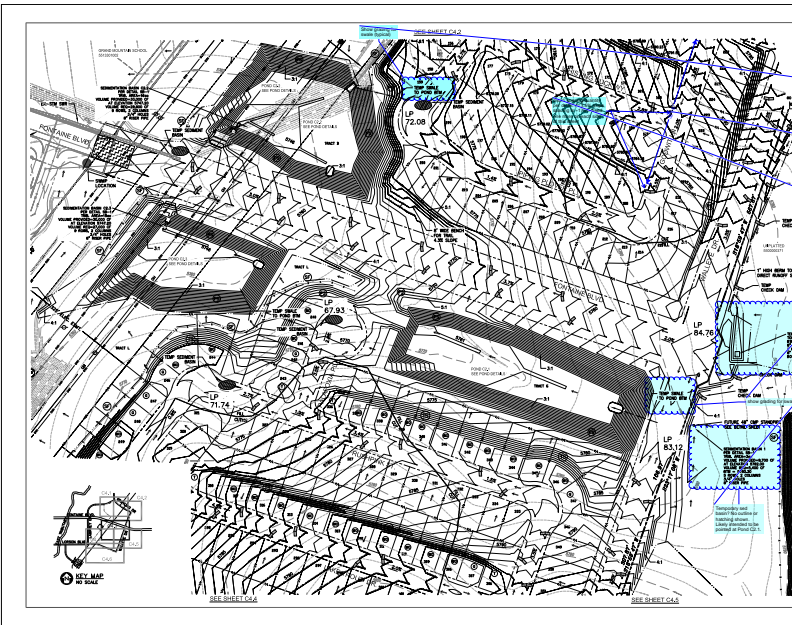


- Author: RSchindler Subject: Sticky Note Date: 10/21/2020 11:25:33 AM
SCHOOL SITE ADDED. NO SCHOOL STRUCTURES ARE WITHIN THIS SITE.
- Author: dotreese Subject: Engineer Date: 8/11/2020 3:41:47 PM
Show easements for all ponds
- Author: RSchindler Subject: Sticky Note Date: 10/23/2020 10:38:57 AM
ON-SITE POND# ARE IN GRASSLAND TRACTS. WILL INCLUDE OPPOSITE EASEMENT FOR POND C4 WITH PLAT label slope of existing slope
- Author: RSchindler Subject: Sticky Note Date: 10/23/2020 10:38:06 AM
SLOPE LABELED
- Author: dotreese Subject: Clouds Date: 8/13/2020 11:51:44 AM
point callout leader arrow at Pond C2.2. Note the elevation differs from this sheet's callout to the one on Sheet C4.3
- Author: RSchindler Subject: Sticky Note Date: 10/21/2020 11:15:26 AM
TEXT UPDATED



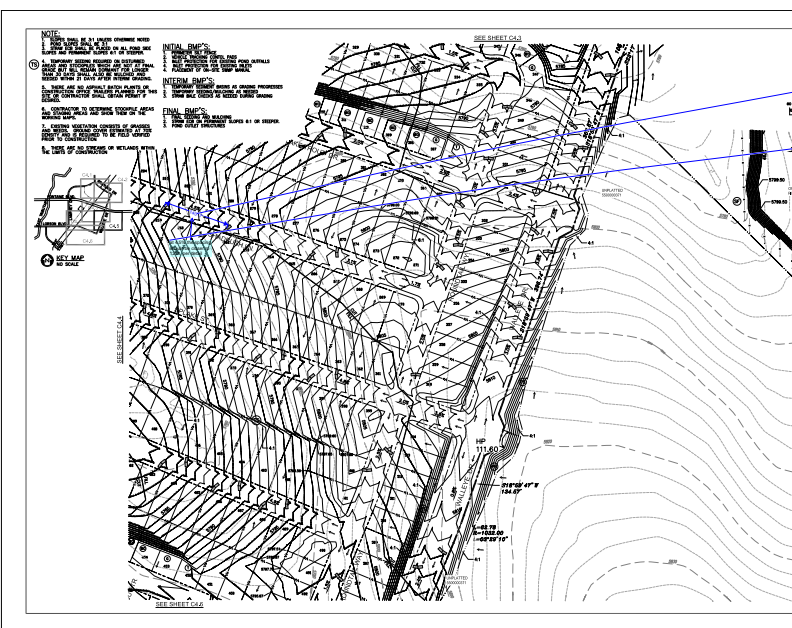
Page: 5

Author: dotreese	Subject: Engineer	Date: 8/13/2020 5:25:32 PM	Label as sediment basin like other ponds?
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 12:54:37 PM	THERE IS NO DISTURBED AREA GOING TO THIS POND AND DOES NOT NEED TO BE A SED. BASIN
Author: dotreese	Subject: Engineer	Date: 8/11/2020 3:08:31 PM	Show grading for all TSB's on site.
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:02:48 PM	CHANGED TO SED. TRAPS WITH SIZE
Author: dotreese	Subject: Cloud+	Date: 8/11/2020 2:49:28 PM	Provide similar details for all other TSB's on site. Include tributary area and design volume (acre-ft) for each
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:03:17 PM	CHANGED TO SED. TRAPS
Author: dotreese	Subject: Dimension	Date: 8/11/2020 1:47:37 PM	233' 6 1/2"
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 12:54:51 PM	ADDED MRE
Author: dotreese	Subject: Cloud+	Date: 8/11/2020 11:51:32 AM	point callout leader arrow at Pond C2.2. Note that the elevation differs from this sheet's callout to the one on Sheet C4.3
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 11:27:30 AM	TEXT UPDATED
Author: dotreese	Subject: Engineer	Date: 8/11/2020 3:11:18 PM	check spacing/quantity per detail. At 3.5% slope, spacing is ~175ft. Need one more on each side of this street
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 12:24:19 PM	MORE ADDED
Author: dotreese	Subject: Engineer	Date: 8/11/2020 3:11:06 PM	Show grading for all temp diversion swales on site.
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:02:32 PM	THERE ARE ONLY TWO DIVERSION SWALES AND ONE BERM. ALL ARE SHOWN. DETAIL EC-10 ADDED



Page: 6

Author: dotreesse	Subject: Cloud+	Date: 8/13/2020 5:23:24 PM
Show grading for swale (typical)		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:03:32 PM
SWALE REMOVED		
Author: dotreesse	Subject: Dimension	Date: 8/11/2020 1:51:38 PM
321'-5"		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:03:44 PM
MORE ADDED		
Author: dotreesse	Subject: Engineer	Date: 8/13/2020 5:10:22 PM
check spacing/quantity per detail. At 3.5% slope, spacing is ~175ft. Need one more on each side of this street		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:03:40 PM
MORE ADDED		
Author: dotreesse	Subject: Cloud+	Date: 8/13/2020 5:10:18 PM
Show grading and callout siding details like this for all TSB's (some are just circles with hatching, but no grading/details).		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 12:53:31 PM
CHANGED THESE TO SEDIMENT TRAPS. ALL SED. BASINS ARE IN THE PONDS.		
Author: dotreesse	Subject: Cloud+	Date: 8/13/2020 5:11:29 PM
show grading for swale		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:04:22 PM
SWALE REMOVED		
Author: dotreesse	Subject: Cloud+	Date: 8/13/2020 5:24:59 PM
Temporary sed basin? No outline or hatching shown. Likely intended to be pointed at Pond C2.1.		
Author: RSchindler	Subject: Sticky Note	Date: 10/21/2020 1:04:13 PM
HATCHING ADDED. THIS WAS FOR OFFSITE GRADING AREA		



Page: 8

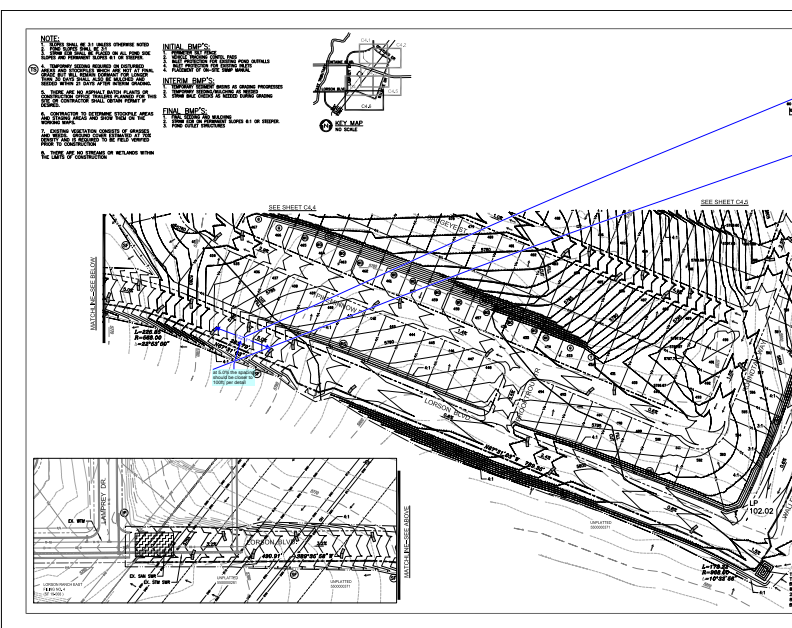
Author: dotreese Subject: Dimension Date: 8/11/2020 1:56:36 PM

140'-7"

Author: RSchindler Subject: Sticky Note Date: 10/21/2020 1:04:39 PM
MORE ADDED

Author: dotreese Subject: Engineer Date: 8/11/2020 1:57:58 PM
at 4.5% the spacing should be closer to 125ft per detail

at 4.5% the spacing should be closer to 125ft, per detail



Page: 9

Author: dotreese Subject: Dimension Date: 8/11/2020 1:58:58 PM

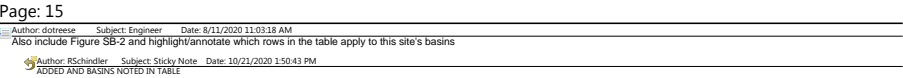
122'-1"

Author: RSchindler Subject: Sticky Note Date: 10/21/2020 1:04:46 PM
MORE ADDED

MORE ADDED

Author: dotreese Subject: Engineer Date: 8/11/2020 1:59:31 PM

Author: dotreese Subject: Engineer Date: 8/11/2020 1:59:33
at 5.0% the spacing should be closer to 100ft, per detail



EC-2 Temporary and Permanent Seeding (TS/PS)

**PRELIMINARY DRAINAGE PLAN
PUD/SP 20-003**

**FINAL DRAINAGE PLAN
CDR 20-007**

THE HILLS AT LORSON RANCH

**MAY, 2020
REVISED 7/23/2020**

Prepared for:

Lorson, LLC
212 N. Wahatch Ave, Suite 301
Colorado Springs, Colorado 80903
(719) 635-3200

Prepared by:

Core Engineering Group, LLC
15004 1st Avenue South
Burnsville, MN 55306
(719) 570-1100

Project No. 100.061



Engineering Review
08/25/2020 9:58:28 AM
JedR@coreeng.com
(719) 526-9577
EPC Planning & Community
Development Department

Design Point 7

Design Point 7 is located on the north side of Splake Street at a low point.

(5-year storm)

Tributary Basins: C2.6 & C2.7

Upstream flowby: 5.4cfs from Des.Pt 5b

Flow Intercepted: 12.1cfs

Inlet Size: 25' type R, sump

Inlet/MH Number: Inlet DP7

Total Street Flow: 12.1cfs

Flow Bypassed:

Street Capacity: Street slope = 3%, capacity = 15.5 cfs, okay

(100-year storm)

Tributary Basins: C2.6 & C2.7

Upstream flowby: 15.2cfs from Des.Pt 5b

Flow Intercepted: 29.9cfs

Inlet Size: 25' type R, sump

Inlet/MH Number: Inlet DP7

Total Street Flow: 29.9cfs

Flow Bypassed:

Street Capacity: Street slope = 3%, capacity = 39cfs (half street) is okay

Design Point 8

Design Point 8 is the storm sewer pipe flow west of Splake Street from Design PTs 5a, 5b, 5d, 6.&7. The total pipe flow is 38.1cfs/81.9cfs in the 5/100-year storm events in the storm sewer.

Design Point 8a

Design Point 8a is the storm sewer pipe flow into the southeast corner of Point C2, from Splake Street from Design PTs 4 & 8. The total pipe flow is 95.6cfs/208.5cfs in the 5/100-year storm events in the storm sewer.

Design Point 9

Design Point 9 is located on the east side of Kilfox Court at a low point south of Lake Trout Drive.

(5-year storm)

Tributary Basins: C2.8+C2.9

Upstream flowby: 7.9cfs

Flow Intercepted: 7.9cfs

Inlet Size: 15' type R, sump

Inlet/MH Number: Inlet DP9

Total Street Flow: 7.9cfs

Flow Bypassed:

Street Capacity: Street slope = 1.5%, capacity = 10.5 cfs, okay

(100-year storm)

Tributary Basins: C2.8+C2.9

Upstream flowby: 17.2cfs

Flow Intercepted: 17.2cfs

Inlet Size: 15' type R, sump

Inlet/MH Number: Inlet DP9

Total Street Flow: 17.2cfs

Flow Bypassed:

Street Capacity: Street slope = 1.5%, capacity = 44.1cfs (half street) is okay

21

Page: 23

Author: dsdrice	Subject: Cloud+	Date: 9/25/2020 2:42:47 PM
C1?		
Author: RSchindler	Subject: Sticky Note	Date: 10/20/2020 8:28:59 AM
yes...C1		

Design Point 31c
Design Point 31c is the storm sewer pipe flow (36" RCP) from Design Pt 31a (storm sewer) and Design Point 31. The total pipe flow is 23.4cfs/55.9cfs in the 5/100-year storm events in the storm sewer.

Design Point 32
Design Point 32 is the storm sewer pipe flow (42" RCP) from Design Pt 30 (storm sewer), Design Point 31b (storm sewer) and Design Point 31c. The total pipe flow is 45.1cfs/105.4cfs in the 5/100-year storm events in the storm sewer from the Xcel spreadsheet.

Design Point 33
Design Point 33 is located at the NE corner of Grayling Drive/Scrub Jay Trail and accepts flows from future development from Basin C8.5 and Basin C8.6. A future storm sewer will be stubbed out from Design Point 34 to collect this future flow. The total future flow is 3.2cfs/15.3cfs in the 5/100-year storm events.

Design Point 34
Design Point 34 is located at the NW corner of Grayling Drive/Scrub Jay Trail and accepts runoff from future Basin C8.7. It is estimated that 30.8cfs/69.2cfs in the 5/100-year storm events will be collected at this Design Point. A 24" Type R inlet will be constructed at this time to complete the downstream storm sewer system. A future storm sewer system and inlets connected to the storm sewer will need to be designed to collect flow from Basin C8.7 and Design Point 33 in Scrub Jay Trail.

Design Point 34a
Design Point 34a is located at the NW corner of Grayling Drive/Scrub Jay Trail and is the storm sewer flow (42" RCP) from future developed flow from Basins C8.5, C8.6, and C8.7. It is estimated that 38.2cfs/84.5cfs in the 5/100-year storm events is flowing in this storm sewer.

Design Point 34b
Design Point 34b is the storm sewer pipe flow (48" RCP) from Design Pts 34a and Design Point 32. The total pipe flow is 83.3cfs/189.9cfs in the 5/100-year storm events in the storm sewer.

Design Point 35
Design Point 35 is the total developed future flow into Pond C4 from the C8 basins and Basin C10.10. The total inflow was calculated by the full spectrum Xcel worksheets. (see appendix for hydrograph spreadsheet). The total inflow to Pond C4 is 131.8cfs/277cfs in the 5/100-year storm events (see xcel spreadsheet).

Design Point 35a
Design Point 35a is the total developed outflow from Pond C4 calculated using the Full Spectrum EDB Xcel Design spreadsheet. The total outflow is 16.5cfs/43.7cfs in the 5/100-year storm events in the 24" storm sewer pipe. The outflow rates are similar to the flows in the Lorson Ranch East MDDP (12.4cfs/40.5cfs) for this pond. In the interim state where there is no upstream development in the C8 basins and no full spectrum outlet structure, runoff comes from existing Basin C4.2-ex/C4.1-ex into the detention pond. Runoff will enter Pond C4 and will be detained/released by a 24" storm sewer pipe located at the west end of the pond. Pond C4 in the interim state was modeled in hydraflow to make sure the outflow rates do not exceed the future pond discharge downstream. The hydraflow model calculated the interim pond outflow (24" pipe outlet) to be 10.3cfs/21cfs in the 5/100-year storm events which is less than the designed future flows.

Author: dsdrice	Subject: Callout	Date: 8/25/2020 3:20:21 PM
Interim flow >30/>70 cfs?		
Author: RSchindler	Subject: Sticky Note	Date: 10/20/2020 8:54:03 AM
added range of flows up to 70cfs. future development will finalize design.		
Author: dsdrice	Subject: Callout	Date: 8/25/2020 3:18:50 PM
Interim sediment basin for C8.3 and C8.4?		
Author: RSchindler	Subject: Sticky Note	Date: 10/20/2020 9:27:11 AM
added basin C4.2-ex		



Author: dsdrice Subject: Callout Date: 8/25/2020 3:56:09 PM
at least one bolt is needed in the middle (all plates)

Author: RSchindler Subject: Sticky Note Date: 10/20/2020 9:37:59 AM
added to all plates

PUDSP 20-003

Owner/Developer:
James M. O.

SWMP Administrator/
Qualified Stormwater Manager:

SWMP Preparer:
Core Engineering Group, LLC
Richard L. Schindler, P.E.
15004 1st Avenue S
Burnsville, MN 55306
719-659-7800

Contractor:

Dwire Earthmoving
6799 Bismark Road, Suite C
Colorado Springs, CO 50922
Contact: Wade Fothergill
(719) 660-1058

Page: 1

EGP-20-006

Author: RSchindler Subject: Sticky Note
TEXT ADDED

Date: 10/21/2020 5:21:12 PM

the El Paso County/City of Colorado Springs Drainage Criteria Manual, Vol. 2 or as directed by the SWMP administrator or his representative.

The existing soil types have a moderate potential for erosion which can be mitigated by employing appropriate downstream construction BMP's before/during/after construction to limit potential impacts to stormwater discharges. The potential impacts are sediment discharge into the existing storm sewer system, proposed storm sewer system. Sediment should not be allowed to enter these existing and proposed facilities and can be mitigated by constructing small temporary sediment basins at low points prior to discharge into the systems. Potential impacts from runoff flowing to the East Tributary will be mitigated by constructing temporary sediment basins in the new pond location. The contractor shall employ the most appropriate method of erosion control measures based on the El Paso County/City of Colorado Springs Drainage Criteria Manual, Vol. 2 or as directed by the SWMP administrator or his representative.

More detailed soils information can be found in the SCS soils survey for El Paso County.

4.0 DEVELOPED CONDITIONS

The overall drainage concept for *The Hills at Lorton Ranch* is to direct the project area runoff west to existing/proposed detention/WQ ponds. Stormwater Quality and detention will be provided on-site prior to discharge into the existing storm sewer system that drains west to the East Tributary of Jimmy Camp Creek.

There are no control measures owned/operated by another entity within this project site and disturbed area.

Proper erosion protection will be installed so no sediment enters the storm sewer system or is discharged offsite.

Construction Site Estimates:

- Project Site - 123.167 acres
- Disturbed Area - 110.00 acres
- Percent Impervious before Construction: 0%
- Runoff Coefficient before Construction: 0.35 for
- Ground Cover density prior to construction 70%
- Percent Impervious after Construction: 52%
- Runoff Coefficient after Construction: 0.55 for developed areas
- Final stabilization must be 70% of pre-construction density.

Receiving Waters:

- East Tributary of Jimmy Camp Creek
- This SWMP does not include any grading within the floodway of the East Tributary of Jimmy Camp Creek.
- Description: The creek channels are dry creek beds that flows water intermittently after significant rainfall events in the drainage basin.

All soil stock piles and borrow areas must be protected with silt fence within 14 days after grading. All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding and mulching. Water is to be used for dust control. The Contractor will prevent the escape of this water and any sediment it may carry from the construction site.

6.1.5 Protect Slopes

Temporary stabilization will include the installation of silt fences on level contours spaces at 10-20 foot intervals. Slopes will be seeded and covered with hay, straw or erosion control blankets on slopes greater than 3:1 as needed to provide for temporary stabilization until vegetation is permanently established.

All slopes within the project limits that are found to be eroding excessively within two years of permanent stabilization shall be provided additional slope stabilization methods such as seeding and mulching. Where slopes are steeper than 3:1 erosion control blankets (per specification requirements) will be utilized for final stabilization.

6.1.6 Protect Storm Drain Inlets

Inlet protection will be installed as soon as storm drain inlets are installed and before land-disturbance activities begin in areas with existing storm drain systems.

At the Contractor's discretion, additional temporary erosion control practices to include rock bags and sand bag barriers may be installed to prevent sediment movement. Inlet protection will include rock bags, erosion logs, curb inlet sediment filters, and if an overflow capacity is necessary to prevent excessive ponding in front of the curb inlet. Concrete block and wire screen inlet protection if used detail will be included [Appendix C](#) prior to installation. will be used where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the inlet.

Inlet protection devices will be inspected and accumulated sediment will be removed as needed.

6.1.7 Establish Perimeter Controls and Sediment Barriers

Temporary stabilization will include the installation of silt fences on the downslope perimeter of project area. The silt fence will be trenched in on the uphill side 6 inches deep and 6 inches wide as detailed in the silt fence exhibit. Sediment will be removed when it reaches 1/2 the height of the fence. Silt fence will be inspected and replaced or repaired as needed.

6.1.8 Retain Sediment On-Site

Temporary sediment traps shall be installed to detain sediment laden runoff from small watersheds for a period long enough to allow sediment to settle before discharge into receiving waters. For small drainage locations smaller sediment traps should be used. At a minimum, silt fences, vegetative buffer strips or equivalent sediment controls are required for all down-slope boundaries (and for those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction. The use of a combination of sediment and erosion control measures in order to achieve maximum pollutant removal will be utilized. Sediment traps will be checked regularly for sediment buildup. Sediments shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half the design volume of the wet storage. Sediment shall be disposed in suitable areas and in such a manner that will not erode or cause sedimentation problems.

The gravel outlets will be checked regularly for sediment buildup which will prevent damage. If the gravel is clogged by sediment, it shall be removed and cleaned or replaced.

Author: doremea Subject: Highway Date: 8/11/2020 4:57:27 PM
Format: r

Author: RSchneider Subject: Sidby Note Date: 10/25/2020 1:27:24 PM
Reference added to appendix B

Author: doremea Subject: Engineer Date: 8/11/2020 4:57:32 PM
update reference.

An alternate to sediment traps are temporary sediment basins.

6.1.9 Establish Stabilized Construction Exits

The construction entrance will be established in the entry points of roads. The construction entrance will be at least 75 feet in length and approximately 12 feet wide and graded so runoff does not leave the site. The aggregate will be established at 8 inches thick on top of 4 inch minimum thick free draining material on top of geotextile and will consist of Type G dense graded material. A stabilized stone pad with a filter fabric under liner will be placed at points of vehicular ingress and egress.

6.1.10 Additional BMP's

BMP Schedule:

All Sediment and Erosion control BMP's (detailed below and only on BMP site map and details if utilized onsite) will be installed prior to any excavation or demolition and will be coordinated with the construction schedule.

As construction changes and new temporary BMP's are needed to control sediment and erosion temporary BMP's will be installed within 24 hours of inspection report.

Recommended BMP's:

ALL RECOMMENDED BMP'S WILL BE INSTALLED PRIOR TO EXCAVATION NEAR ANY SENSITIVE AREAS.

Culvert Inlet Protection will be used to protect existing and new culvert inlets. Inlet Protection Detail will be included in Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

Silt Fence is to be installed in sensitive areas to protect stream channels, pond, and overland runoff. On this site it will be used to protect runoff from the silt pits. See Silt Fence Detail. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment builds up will be removed and the area exposed shall be seeded.

Vehicle Tracking Control is needed at the main construction entrance location. Vehicle tracking control shall be installed at the edge of the construction staging area where construction vehicles regularly exit onto existing asphalt road. If sediment tracking occurs it will be cleaned within 24 hours.

See Vehicle Tracking Control Detail in [Appendix C](#). Removal of this BMP will occur only after project is substantially complete and is ready for seeding operations. The area will then be seeded per specification with the rest of the project.

Check Dams (rip rap) will be used to reduce storm water velocities in drainage channels during construction as a temporary measure until permanent stabilization can be created and vegetation has been established. Check Dam Detail will be included in the Appendix before using onsite. Removal of this BMP will occur only after vegetation is established to a minimum of 70% pre construction coverage and after removal of BMP all sediment build-up will be removed and the area exposed shall be seeded.

[Author: dorena](#) [Subject: Highlight](#) [Date: 8/11/2020 4:55:59 PM](#)

[Appendix C](#)

[Author: RSchindler](#) [Subject: Sticky Note](#) [Date: 10/25/2020 1:28:02 PM](#)

[Appendix C](#)

[Author: dorena](#) [Subject: Engineer](#) [Date: 8/11/2020 4:56:01 PM](#)

update reference.

Toilets: Portable toilets will be located a minimum of 50 feet from state waters. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

Portable Toilets: Portable toilets are brought in from a service contractor and will be maintained in accordance with standard waste disposal practices using vacuum trucks and placed on stable ground to minimize risk of spillage. All portable toilets will be kept a minimum of 500' from any waterway.

Waste Disposal: If needed Roll offs will be utilized for standard construction waste. A qualified contractor will remove waste weekly and take to an appropriate dump site off this project.

6.1.11 Permanent BMP'S:

Re-vegetation:

During construction any disturbed area not being currently worked left dormant longer than 14 days will be re-vegetated per specification with native seed and mulched and crimped with weed free straw.

Final Stabilization will be considered complete when all disturbed areas have a minimum of 70% preconstruction coverage for the specification requirements. Then all temporary BMP's will be removed and the exposed areas left behind will be seeded.

Other permanent BMP's include Detention/WQ Pond C1, C2.1, C2.2, C2.3, C3, C4 to treat storm runoff prior to entering the storm sewer system that drains to the East Tributary of Jimmy Camp Creek.

Item 18 - Describe ponds in a bit more detail here or in a more appropriately deemed section; they are full spectrum ponds, etc

6.2 Good Housekeeping BMP'S

6.2.1 Material Handling and Waste Management

The site will use a private refuse collector that will remove litter twice weekly. No less than one litter receptacle will be present at the construction site. In the event that unusual items such as tanks, cylinders, unidentified containers, etc. which could contain potentially hazardous materials are discovered or disturbed, the Fire and Rescue services will be notified. Litter and debris will be picked up and disposed of properly daily. Temporary toilet facilities will be located 500 feet away from any storm drain inlets and all waters of the state.

6.2.2 Establish Proper Building Material Staging Areas

A designated staging area will be used; location to be determined based on available space in the field and plans will be redline. The staging area will be contained per SWMP guidelines. All Equipment and Materials will be brought into the site as needed.

6.2.3 Designate Washout Areas

A concrete washout will be installed to detail as shown in Exhibit 1, and will be placed more than 500 feet away from any waters of the state.

6.2.4 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

During construction the site will be exposed to operation and maintenance of construction equipment. The contractor shall be responsible for all activities such as fueling, oil changing, lubrication and repair which require use of petroleum products. Such products shall be

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Author: drcrowe - Subject: Engineer - Date: 8/11/2020 1:49:57 PM

Toilets: Portable toilets will be located a minimum of 50 feet from state waters. They shall be adequately staked and cleaned on a weekly basis. They will be inspected daily for spills.

Author: RSchindler - Subject: Sticky Note - Date: 10/21/2020 1:29:41 PM

Note added

Author: drcrowe - Subject: Engineer - Date: 8/11/2020 1:49:58 PM

Item 18 - Describe ponds in a bit more detail here or in a more appropriately deemed section; they are full spectrum ponds, etc

Author: RSchindler - Subject: Sticky Note - Date: 10/21/2020 1:32:47 PM

Note added to other types of ponds; these are

Fueling Area (site equipment only)	Spill containment pad, spill kit, pumps, funnels
Hazardous Material Staging Area	Spill containment pad, spill kit, pumps, funnels
Unexpected Contaminated Soil	Plastic liner, plastic cover, soil berm, hay bales, lined super sacks

7.3 SPILL COUNTERMEASURES
Every preventative measure shall be taken to keep contaminated or hazardous materials contained. If a release occurs, the following actions shall be taken:
1. **Stop the Spill:** The severity of a spill at the site is anticipated to be minimal as large containers/quantities of Hazardous Materials (HM) are not anticipated. The type of spill would occur while dispensing material at the HM storage facility and would likely be contained in secondary containment. Thus, the use spill kits or other available absorbent materials should stop the spill.
2. **Warn Others:** Notify co-workers and supervisory personnel of the release. Notify emergency responders if appropriate. For site personnel, an alarm system will consist of three one second blasts on an air horn sounded by the person discovering a spill or fire. In the event of any spill, the Superintendent and Project Manager shall be notified **if the spill is 5 gallons or more the STATE will be contacted along with the Fire Department.**
3. **Isolate the Area:** Prevent public access to the area and continue to minimize the spread of the material. Minimize personal exposure throughout emergency response actions.
4. **Containment:** A spill shall only be contained by trained personnel and if it is safe to do so. **DO NOT PLACE YOURSELF IN DANGER.** Attempt to extinguish a fire only if it is in the incipient stage; trash can size or smaller. For larger spills, wait for the arrival of emergency response personnel and provide directions to the location of the emergency.
5. **Complete a Spill and Incident Report:** For each spill of a Hazardous Material a spill and incident report shall be completed and submitted to the Owner/Construction Manager and if applicable to the Engineer and the State of Colorado Department of Public Health and Environment

8.0 INSPECTIONS

8.1 Inspections
Inspections will occur at least every 14 days and within 24 hours of a precipitation or snow melt event producing runoff, which from past experience this occurs with precipitation of 1/4 inch of rain or more. The primary site for tracking weather data and rainfall measurements will be taken from Weather Underground and a rain gauge will be onsite for verification only.

- 1. Inspection Personnel:**
The contract Qualified Stormwater Manager will conduct the site inspections as mentioned above in Section 1. **Reference to QSM not seen in Section 1.**
- 2. Inspection Schedule and Procedures:**
The inspection schedule will be routinely accomplished every 14 days and after every storm event or snow melt for the entire site with all BMP's evaluated for performance and

ECM Appendix I.5 - Self-Monitoring Inspections - QSM's need to be identified in the SWMP and provide documentation of their credentials. So at the very least state: "The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5"

- Author: damene Subject: Engineer Date: 8/17/2020 8:17:18 AM
reference to QSM not seen in Section 1. Revise or remove reference
- Author: RSchindler Subject: Sticky Note Date: 10/21/2020 5:36:48 PM
referenced updated to E.I.
- Author: damene Subject: Engineer Date: 8/11/2020 5:00:04 PM
ECM Appendix I.5 - Self-Monitoring Inspections - QSM's need to be identified in the SWMP and provide documentation of their credentials. So at the very least state: "The QSM will be sufficiently qualified for the required duties per the ECM Appendix I.5"
- Author: RSchindler Subject: Sticky Note Date: 10/21/2020 5:36:53 PM
not added

need. Any BMP found to be ineffective will be re-accomplished or replaced with a new BMP to provide the level of protection needed. BMP's found to be no longer needed will be removed. Inspections will also be accomplished as soon as practical, but within 24 hours of the end of a precipitation or snow melt event causing surface erosion. The general procedures for correcting problems when they are identified will be to document the problem in the log and devise a solution utilizing all resources available to formulate BMP's that will correct the problem as soon as possible. A copy of the inspection report to be used for the site is attached. See Appendix.

8.2 Delegation of Authority
Duly Authorized Representative(s) or Position(s):
Authorized representatives for the SWMP plan will be: Jeff Mark – Primary Contact
Qualified Stormwater Manager – Trevor Terrell

8.3 Revisions to the SWMP
The Qualified Stormwater Manager and/or the site superintendent have the authority to add/subtract/revise BMP's as necessary to accommodate stormwater flow and prevent runoff. However, the engineer should be notified when any major restriction of runoff, offsite runoff, pond modifications, or other substantial changes are made to this SWMP. Changes should be documented per Section 9.0.

9.0 RECORDKEEPING AND TRAINING

9.1 Recordkeeping **Item 25 - add a note stating that the inspection logs will be signed**
Records will be retained for a minimum period of at least 3 years after the permit is terminated. Major activities will start on 9/01/2020.
Date(s) when construction activities permanently cease on a portion of the site: 7/20/21
Date(s) when an area is either temporarily or permanently stabilized: 10/20/21

9.2 Changes to the SWMP
Any changes will be referenced in APPENDIX. See Section 8.3 for authority to change the SWMP.

9.3 Training
Individual(s) Responsible for Training:
All personnel on site will be trained on the site specific SWMP requirements to be conducted by the Qualified Stormwater Manager and/or the site superintendent.

9.4 SWMP Location
The on-site SWMP will be located at the SE corner of Fontaine Boulevard and Rockcastle Drive as indicated on Exhibit 1. All signed inspection logs will be kept on-site with the SWMP.

10.0 FINAL STABILIZATION

Final stabilization will be accomplished by contractors to re-vegetate the area of disturbance per the approved plans and specifications. Final stabilization will include permanent

Item 21 - Add text stating that the SWMP should be viewed as a "living document" that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMP's or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMP's are no longer necessary and are removed.

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Author: danner Subject: Engineer Date: 8/11/2020 4:03:10 PM

Item 25 - add a note stating that the inspection logs will be signed
Author: KSchindler Subject: Sticky Note Date: 10/21/2020 5:40:16 PM
Topic: m5161

Author: danner Subject: Engineer Date: 10/21/2020 5:39:07 PM

Item 21 - Add text stating that the SWMP should be viewed as a "living document" that is continuously being reviewed and modified as a part of the overall process of evaluating and managing stormwater quality issues at the site. The Qualified Stormwater Manager shall amend the SWMP when there is a change in design, construction, operation or maintenance of the site which would require the implementation of new or revised BMP's or if the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity or when BMP's are no longer necessary and are removed.

Author: KSchindler Subject: Sticky Note Date: 10/21/2020 5:40:08 PM
Topic: m5161

APPENDIX B

EROSION CONTROL PLANS

reviewed and commented on separate GEC plans uploaded to EDARP

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