GENERAL REVIEW CHECKLIST

Project Name:_____

Date:_____

Submitted By:_____

Reviewed By:_____

Design Requirements

No.	Yes	No	N/A	*General Requirements*
G1				Designed by a MT licensed Professional Engineer
G2				Plans, Specifications, Reports Stamped by MT PE
G3				Design Submitted to MT DEQ for concurrent review
G4				Roadways to be constructed to far property line
G5				Utilities to be constructed to far property line
G6				Easements provided for all (City Owned) roads and utilities
G7				10' easement along lot front and side street lines for private utilities
G8				All new utilities placed underground
G9				Proposed Street Lights 2 feet or more behind curb
G10				Survey Datum is NAVD 1988
G11				Coordinate System is MT State Plane, International Foot
G12				All Final Plat, Planned Unit Development, and/or Conditional Use Permit conditions are provided with this submittal and have been met.

Engineer: Name_____

License No._____

Firm_____

Signature_____

Date_____

MT Professional Engineer's Stamp

WATER REVIEW CHECKLIST

Project Name:_____

Date:_____

Submitted By:_____

Reviewed By:_____

Design Requirements

No.	Yes	No	N/A	***Designed, constructed and tested in accordance with:***
W1				Circular DEQ 1 - Standards for Water Works
W2				Montana Public Works Standard Specifications (Current Issue)
W3				City of Kalispell - The Standards for Design and Construction (Current Issue)
No.	**Yes**	**No**	**N/A**	***Additional Requirements:***
W4				Design Engineer submitted report addressing fire and domestic flows
W5				Design Engineer is MT PE and has stamped plans and report
W6				Report includes flow test results at nearest hydrant(s) to development
W7				Hydrant test shows static pressure
W8				Hydrant test shows available flow at 20 psi residual pressure
W9				Fire Flow Requirements determined by Kalispell Fire Department

Construction and Material Requirements:

No.	Yes	No	N/A	***Isolation Valves:***
W10				Are not in gutter flowlines, sidewalks, travel route, multiple use path, or travel lane wheel path
W11				On each leg of each tee or cross
W12				At each intersection crossing
W13				Butterfly Valves are Muller Lineseal or approved equal (C504)
W14				Isolation Valves larger than 12" are butterfly valves
W15				Gate Valves are Mueller Resilient Wedge Gate Valves (C509)
W16				Tapping sleeves are Romac SST III or approved equal for 4" or greater
W17				Valve Boxes are slip or screw type adjustment
W18				Valve box collar is provided in accordance with drawing ST-18

No.	Yes	No	N/A	***Water Pipe:***
W19				8" minimum diameter for mains
W20				6" minimum diameter for fire hydrant lead lines (not exceeding 50 feet in length)
W21				6" to 12" diameter are Class 150 (C900) PVC
W22				Mains larger than 12" are Class 150 (C905) PVC
W23				Fittings are Mechanical Joint Class 350 (C153)
W24				Mechanical Joint Restraints are Megalug or approved equal
W25				Thrust blocks are installed at all mechanical joint fittings
W26				Detectable warning tape is a min. of 5 mil and 3" wide, conforming to APWA colors, and buried 12" - 24" below final ground surface
W27				Toner wire is 14 ga solid core copper, appropriately insulated and spliced, taped at top of main, and brought to surface and accessible at valves.
No.	**Yes**	**No**	**N/A**	***Water Services:***
W28				Service line, valve and meter for each individual ownership
W29				Service saddles are Mueller BR2 series or approved equal
W30				Corporation stops are Mueller 300 Series Ball Valves or approved equal
W31				Curb stops are Mueller 300 Series Ball Valves or approved equal
W32				Fittings are Mueller Insta-Tite, 110 Series compression, or approved equal
W33				Curb boxes are Mueller H-10308, cast iron extension, arch base, 1-1/2" ID upper, 6-1/2' length, w/ stationary rod and pentagon brass plug
W34				Service lines up to and including 2" are PE (C901)
W35				Service lines 4" and greater are Class 150 PVC (C900)
No.	**Yes**	**No**	**N/A**	***Fire Hydrants:***
W36				Are Red
W37				Are Mueller Super Centurion Fire Hydrants
W38				Have Storz adapter(s) with cap conforming to C502
W39				Spacing does not exceed 500 feet in residential, 300 in commercial, or 200 feet in industrial areas
W40				Barrel is more than 2 feet behind top back curb
W41				Barrel is more than 2 feet from edge of sidewalk
W42				Placement approved by Fire Chief

SANITARY REVIEW CHECKLIST

Project Name:_____

Date:_____

Submitted By:_____

Reviewed By:_____

No.	Yes	No	NA	***Designed, constructed and tested in accordance with:***
SA1				Circular DEQ 2 - Design Standards for Wastewater Facilities
SA2				Montana Public Works Standard Specifications (Current Issue)
SA3				City of Kalispell - *The Standards for Design and Construction* (Current Issue)
No.	**Yes**	**No**	**N/A**	***Additional Design Requirements:***
SA4				Design Engineer submitted written report for all improvements or additions.
SA5				Design Engineer is MT PE and has stamped plans and report
SA6				Design Report assesses the ability of existing mains to handle peak design flow from proposed improvements and the impact on the Wastewater Treatment Plant
SA7				Minimum design contributing flows are 265 gal/day/ERU with a Peaking Factor of 3.05 or Design Peak Hour Flow of 0.56 gpm/ERU
SA8				City Engineer may require sulfide generation analysis
SA9				If dissolved sulfide exceeds 0.2 mg/l, non-corrosive linings and/or special lift station design may be required
SA10				Watertight manhole covers are installed in locations where flooding may occur
SA11				Valves and manholes are not located in gutter flowlines, sidewalks, boulevards, or the wheel path of traveled lanes
No.	**Yes**	**No**	**N/A**	***Lift Station Design Report Requirements***
SA12				Design Engineer submitted written report for new lift station or flows contributing to existing lift station
SA13				Description of wet well, pumping system, and force main
SA14				Capacity of recommended pumps and potential for upgrading
SA15				Map showing potential lift station service area
SA16				Average and Peak Design Flows for project and potential service area
SA17				Hydraulic capacity of the force main
SA18				Reserve capacity of the lift station when proposed project is on line and at full capacity
SA19				Pump run and cycle times for the average and peak design flows
SA20				Strategies for improvements which may be necessary to accommodate future sewer extensions (i.e., increased storage, pumping, auxiliary power capacity)
SA21				Pump selection process, including Engineer's calculations for Total Dynamic Head, Total Discharge Head, Net Positive Suction Head, and other pertinent pump selection criteria
SA22				Designed pump operating curve on manufacturer's pump performance chart with the designed operating point clearly identified

CONSTRUCTION AND MATERIAL REQUIREMENTS:

No.	Yes	No	N/A	Lift Station:
SA23				Duplex system setup (two complete and independent pump set ups)
SA24				Pumps, moving parts and controls are above ground
SA25				Pumps are self-priming, suction lift type
SA26				Pumps are equal to those manufactured by Gorman Rupp Company
SA27				Submersible 3" pumps or submersible grinder pumps may be considered based on required operating volumes and heads of proposed lift stations
SA28				Emergency natural gas generator is supplied
SA29				Generator is quieter than 65 dbA from 20' away
SA30				Influent pipe to wet well is DIP, class 50 cement lined, one joint long, and spigot extends 6" into the wet well beyond the interior wall.
SA31				Has hour meter
SA32				Has suction pressure gauge tap and valve for each pump
SA33				Has discharge pressure gauge tap and valve for each pump
SA34				Amperage meters are installed on each leg of electrical wiring
SA35				Controls include a pump run alternator (lead-lag alternator)
SA36				Lightning protection is provided on electrical power supply
SA37				Primary level control system is a transducer or air bubbler
SA38				Backup level control system is encapsulated mercury float switches
SA39				Engineer may request list of up to 3 lift stations of proposed type, in service for at least 5 years. City reserves right to accept or reject the proposed lift station.
No.	**Yes**	**No**	**N/A**	***Lift Station Access Roadway:***
SA40				A minimum 12 foot wide paved road provides access to the lift station
SA41				The access road has a concrete approach between the sidewalk and the curb
No.	**Yes**	**No**	**N/A**	***Lift Station Fence:***
SA42				Fence is 6 ft chain link security fence
SA43				Gate is 12 foot wide, double swing (two 6 foot leaves)

No.	Yes	No	N/A	***Lift Station Building:***
SA44				Is gable-roofed
SA45				Is constructed on shallow monolithic foundation with 4" floor
SA46				A treated sole plate is firmly anchored to the monolithic foundation
SA47				Finished floor to ceiling is 8 feet
SA48				Roof slope is 4:12
SA49				Lap siding has 7" reveal
SA50				Wall sheathing is 1/2" OSB
SA51				Roof sheathing is 5/8" OSB
SA52				Shingles are 30-year, 3 tab
SA53				Door is 3068 steel with deadbolt lock
SA54				Ceiling is 5/8" unfinished gypsum board
SA55				Wall studs are 6"
SA56				Interior siding is T-111
SA57				Wall insulation is R-19 minimum
SA58				Ceiling insulation is R-49 minimum
SA59				All other incidental items as required
SA60				Heating system is provided
SA61				Lights are ceiling mounted industrial lights in cage
SA62				Exterior yard lighting is provided
SA63				Building plans have been submitted by Design Engineer to Public Works for review
No.	**Yes**	**No**	**N/A**	***Lift Station Alarm System:***
SA64				Detects power interruption
SA65				Detects high water
SA66				Detects motor temperature conditions
SA67				Alarm signals are directed to on-site alarm monitor and telephone dialer (Mission Communications Model M-110 [20 hp and smaller] or M-800 [larger than 20 hp])
No.	**Yes**	**No**	**N/A**	***Gravity Sewer Main:***
SA68				Minimum Diameter of gravity main(s) is 8"
SA69				Material is SDR 35 PVC
SA70				Are deep enough to prevent freezing *(6 foot)*
SA71				Shallow mains are insulated as necessary to prevent freezing *(one trench wide layer of 2" blue board per foot below minimum cover)*
SA72				There are no storm water connections

No.	Yes	No	N/A	***Oil/Water Separators:***
SA73				Oil/Water separator(s) is installed for automotive facilities, paint shops, dealerships, gas stations, equipment degreasing areas, and other facilities generating waste water with oil and grease content to be maintained on site.
SA74				Oil/Water separator(s) for commercial/industrial processes is(are) sized based on analysis of wastewater characteristics with the discharge directed to the sanitary sewer system.
SA75				All oil/water separators are fitted with standard final-stage sample box and spill absorbent pillows
SA76				Oil/water separators are commercially manufactured and sized for the facility
No.	**Yes**	**No**	**N/A**	***Force Mains:***
SA77				Detectable warning tape is a min. of 5 mil and 3" wide, conforming to APWA colors, and buried 12" - 24" below final ground surface
SA78				Toner wire is 14 ga solid core copper, appropriately insulated and spliced, taped at top of main, and brought to surface and accessible at valves.
SA79				Toner wire installed for burst processes is 1/4" steel toner cable
No.	**Yes**	**No**	**N/A**	***Sewer Services:***
SA80				Service line is provided for each individual ownership
SA81				Stub-outs are marked according to SA.4
SA82				There are no stormwater connections
No.	**Yes**	**No**	**N/A**	***Manholes:***
SA83				Cover is as shown in drawing SA.8, or approved equal
SA84				The cover is marked "SANITARY" or "SANITARY SEWER"
SA85				Conforms to drawing SA.3
SA86				Manhole Collar is provided meeting drawing ST.18

STREET REVIEW CHECKLIST

Project Name:_____

Date:_____

Submitted By:_____

Reviewed By:_____

No.	Yes	No	NA	***Designed, constructed, and tested in accordance with:***
ST1				Montana Public Works Standard Specifications (Current Issue)
ST2				City of Kalispell - The Standards for Design and Construction (Current Issue)
ST3				Manual on Uniform Traffic Control Devices
ST4				The Subdivision Regulations of the City of Kalispell
No.	**Yes**	**No**	**N/A**	***Additional Requirements:***
ST5				Design Engineer is MT PE and has stamped plans and report
ST6				Design is Approved by City Engineer
No.	**Yes**	**No**	**N/A**	***Traffic Analysis:***
ST7				Analysis has been provided for development if over 300 vehicles per day contribute to the City street system
ST8				Professional Traffic Operation Engineer submitted and stamped the analysis
ST9				The report indicates current traffic conditions for all impacted roads and Level Of Service (LOS) for each road
ST10				The report identifies all negative impacts and details a mitigation plan to maintain the predeveloped LOS
ST11				The analysis considers bicycle and pedestrian traffic
ST12				The analysis is in accordance with the MDT requirements and national standards (Chapter 41 of Traffic Engineering Manual)
No.	**Yes**	**No**	**N/A**	***Cul-de-sacs:***
ST13				Dead end streets terminate with a cul-de-sac
ST14				Temporary cul-de-sac size is approved by the Fire Chief and City
ST15				Cul-de-sacs are less than 600' in length
ST16				Radius is 47' to back of curb and 58' to right-of-way
ST17				A 6' boulevard is provided
SA18				A 5' sidewalk is provided
No.	**Yes**	**No**	**N/A**	***Streets:***
ST19				Alignments have adequate sight distances (See AASHTO Design Standards)

No.	Yes	No	N/A	Collectors and Arterials:
ST20				Are designed for a speed of 35 mph in accordance with the latest edition of AASHTO A Policy on Geometric Design of Highways and Streets
ST21				Locations comply with Kalispell Growth Policy or any other plans adopted by Flathead County Board of County Commissioners and/or the City of Kalispell
ST22				Frontage roads serve driveways and approaches rather than accesses from Collectors and Arterials
ST23				Locations comply with Kalispell Area Transportation Plan. [MC 28.03.14.E]
No.	**Yes**	**No**	**N/A**	***Street Name and Traffic Control Signs:***
ST24				Streets aligned with existing streets are named the same as the existing street [MC 28.03.14.P]
ST25				Installed at each intersection.
ST26				Names have been approved by Public Works.
ST27				Meet requirements of MUTCD.
ST28				Constructed according to Detail ST.12 in Design and Construction Standards.
No.	**Yes**	**No**	**N/A**	***Street Lights:***
ST29				Are provided on all streets within a subdivision
ST30				One corner light is provided for a two lane street intersection
ST31				Two corner lights, placed diagonally are provided for four or more lanes.
ST32				Light is provided for each mailbox group, bus stop location, and pedestrian path intersection.
ST33				Light fixtures are full cut off as defined by Illuminating Engineering Society of North America (IES)
ST34				Fixture type is FEC's standard full cut-off cobra head with Type III distribution
ST35				Pole is FEC's standard 30 foot pole mounted to concrete pole bases
ST36				Lamps in commercial areas are 200W HPS, poles spaced at 200 feet maximum
ST37				Lamps in residential areas are 100W HPS, poles spaced at 250 feet maximum
ST38				Lights are staggered to each side of the street.
ST39				For 4 or more lanes, maximum spacing is decreased by 50%
ST40				15% spacing variance is allowed if approved by Public Works
ST41				Roads with sharp turns meet the illuminance and illuminance conformity of Table 3
ST42				Privately owned and maintained lights meet the minimum standards of Table 3

No.	Yes	No	N/A	***Street Intersections:***
ST43				Intersect at 90° if possible, but never less than 75° for a distance of 60' measured from centerline to right-of-way line of intersecting.
ST44				No more than two streets intersect at one point.
ST45				Two streets meeting a third street from opposite sides, meet at the same point and their centerlines offset by at least 125' for local roads and 300' for collectors.
ST46				Maximum straight tangent grade does not exceed 2% for 60' as measured from edge of transverse pavement edge to allow for stopping, starting and stacking distances.
ST47				Minimum back of curb radii at intersection is 20'
ST48				Provide a minimum sight distance of 150'.
No.	**Yes**	**No**	**N/A**	***Alleys:***
ST49				Provided for residential single family lots less than 50' in width. [MC.28.03.15.B.1]
ST50				Provided for duplex or townhouse developments with street frontage density of 40' per unit or smaller ON AVERAGE for any block. [MC.28.03.15.B.2]
ST51				Provided for lots adjacent to an existing or future collector street. [MC.28.03.15.B.3]
ST52				Have a minimum 20' right-of-way width and 20' paved surface width in commercial areas. [MC.28.03.15.C.1]
ST53				Have a minimum 16' right-of-way width and 12' paved surface width in residential areas [MC.28.03.15.C.2]
ST54				Are open at both ends. [MC.28.03.15.C.3] [Ord. 1707, 12-19-2011]
No.	**Yes**	**No**	**N/A**	***Permanent Dead End Streets (Discouraged, Used Sparingly when all else fails):***
ST55				Does not exceed 600 feet from intersecting street centerline to center of cul-de-sac or approved turn around. [MC.28.03.14.C.1]
ST56				Termination as approved by the Fire Chief [MC.28.03.14.C.2]
ST57				Cul-de-sac termination is designed as described in cul-de-sac section of checklist. [MC.28.03.14.C.2]
ST58				Hammerhead termination is on a dead-end street shorter than 150' long. [MC.28.03.14.C.2.b]
ST59				Hammerhead travel surface extends 40' to the right and left of centerline of primary street. [MC.28.03.14.C.2.b.i]
ST60				Hammerhead travel surface is a minimum of 20' wide [MC.28.03.14.C.2.b.ii]
ST61				Another turn-around design as approved. [MC.28.03.14.C.2.b.iii]
ST62				Turn-around may be waived if dead-end street is less than 110' long. [MC.28.03.14.C.2.b.iv]

No.	Yes	No	N/A	*Sidewalks:*
ST63				Width is greater than or equal to 5 feet. [MC.28.03.16.C]
ST64				Sidewalks are separated from the roadway by a landscaped boulevard or open space. [MC.28.03.16.F]
ST65				A 2 inch sleeve is placed under the sidewalk to serve each lot for allowing convenient access for irrigation lines in the boulevard. The sleeve is 5 feet on either side of the driveway edge or marked with a stamp in the concrete. [MC.28.03.16.G]
ST66				Will be kept free of snow, debris, brushes, etc., by adjacent property owner or HOA [MC.28.03.16.J]
ST67				Sidewalks are designed in per AASHTO guidelines and meet the most current version of ADA Standards. [28.03.16.L]
No.	**Yes**	**No**	**N/A**	***Bikepaths/Pedestrian Paths:***
ST68				Width of asphalt path is greater than or equal to 10 feet [MC.28.03.16.D]
ST69				Width of concrete path is greater than or equal to 8 feet [MC.28.03.16.E]
ST70				Entity responsible for maintenance is identified at time of preliminary plat approval. [MC.28.03.16.K]
ST71				Meet AASHTO Guide for the Development of Bicycle Facilities and Guide for the Planning, Design and Operation of Pedestrian Facilities most current versions.
ST72				If serving as an emergency or maintenance route, it accommodates HS-20 loading.
ST73				No catch basins, valve boxes, curb boxes, or other utility appurtenances are located within the travel path.
ST74				Path signage meets MUTCD

CONSTRUCTION AND MATERIAL REQUIREMENTS:

No.	Yes	No	N/A	*Asphalt Surface:*
ST75				Materials are to be tested in accordance with MPWSS 02510. Densities and thickness are to be measured by the core method.
ST76				Design thickness is not less than 4 inches
No.	**Yes**	**No**	**N/A**	***Sub base:***
ST77				Is crushed stone in accordance with MPWSS 02234
ST78				Is 3" minus material with at least one fractured face.
ST79				Larger material may be approved on a case by case basis, with at least one fractured face.

Place an "X" next to roads included in design and circle any standards not met in the street design

TABLE 1 [MC.28.03.14.A]
STANDARDS FOR SUBDIVISION STREETS

Select Applicable Roads	Street	R/W Ownership	R/W (1)	Travel Surface Min.	Sidewalk	Lots Served Max.	Dwellings Served Max.	Through Street	Infill Tech. Only	Max. Grade
	Local-1	Private	10	10	None	1	0 (utility)	No		8%
	Local-2	Private	20	10	None	2	2	No	Yes	8%
	Local-3	Private	30	20	One side	3	6	No	Yes	8%
	Local-4	Private	40	20	Each side with lots served	4	8	No	Yes	8%
	Local-5	Private or Public	50	24	Both sides	5	20	No	Yes	8%
	Local-6	Public	60	28	Both sides	6+	n/a	Yes		8%
	Collector	Public	60	34	Both sides	n/a	n/a	Yes		8%
	Arterial	Public	80	-2	Both sides	n/a	n/a	Yes		8%

[1] Terrain and design constraints may dictate greater right-of-way; all road disturbances must be accommodated within the right-of-way.

[2] Design approved by the City Engineer/Kalispell Design and Construction Standards.

TABLE 2 [DS-07]

OWNER METERED/MAINTAINED LIGHTS

Classification	Average Illuminance (foot candles)	Illuminance Uniformity Ave/Min	Pole Height Range	Max lamp Wattage /type
Local Commercial	0.6	6 to 1	20-30 ft	200W HPS
Local Residential	0.3	6 to 1	15-30 ft	100W HPS
*All values are to be measured on the sidewalk.				

STORMWATER REVIEW CHECKLIST

Project Name:_____

Date:_____

Submitted By:_____

Reviewed By:_____

No.	Yes	No	NA	*Requirements*
SW1				Stamped and dated construction drawings and design report are provided.
SW2				A geotechnical site characterization is provided, if required.
SW3				Water quality treatment is provided for this first 0.5 inch of rainfall on the site, and calculations are included.
SW4				A completed wetland checklist is included.
SW5				Drainage basin maps are provided which clearly label each drainage basin.
SW6				Time of concentration routes for each segment are provided and clearly labeled with calculations.
SW7				Check that all storm sewer pipes are sized to handle the 10-year storm event.
SW8				The design water surface for flood control facilities is the 100-year post developed water surface elevation.
SW9				The total discharge rate leaving the site shall be limited to pre-developed rates.
SW10				All orifices are at least three inches.
SW11				Check discharge locations. Stormwater runoff must be discharged in the same manner and at the same location as in the pre-developed condition.
SW12				Culverts are designed to convey the 100-year design storm.
SW13				For stormwater facilities outside of the public road right-of-way, the project owner shall provide for the financial means and arrangements for the perpetual maintenance of the drainage facilities.
SW14				Check for offsite waters coming onto the site. Provisions need to be made to receive and pass offsite waters.
SW15				A down-gradient analysis has been completed and is provided.
SW16				Pond bottoms are located at least 0.5 feet below the outlet to provide sediment storage.
SW17				The proposed stormwater facility meets the setback requirements as outlined in the Standards for Design and Construction.
SW18				Calculations are provided to show that the pond will drain completely within 72 hours (unless it is a wet pond).
SW19				Interior pond side slopes are not be steeper than 3H:1V.
SW20				An emergency overflow spillway is provided to bypass the 100-year developed peak flow.
SW21				Fencing is provided if required by the Design and Construction Standards.
SW22				Pipes are designed to have a self-cleaning velocity of 2.5 ft/sec.

No.	Yes	No	NA	*Requirements*
SW23				The HGLs are provided to show 0.5 feet of freeboard to the top of grate or cover in catch basins or manholes.
SW24				Wherever two pipes of the same size meet at a junction, the downstream pipe shall be placed with its invert 0.1 feet below the upstream pipe invert. When two different sizes of pipes are joined, pipe crowns shall be placed at the same elevation.
SW25				Inlet spacing does not exceed 400 feet.
SW26				Gutters have a minimum longitudinal slope of 0.5%.
SW27				The non-flooded width has been evaluated at low points, proposed inlet sections, and intersections. Bypass flow shall be limited to 0.1 cfs at intersections and at the project boundary.
SW28				Catch basins, inlets, and storm manholes shall have a minimum 24 inch sump below the lowest pipe invert elevation.
SW29				Inlet grates are depressed no more than one inch.
SW30				Grate inlet capacity calculations are provided using a 35% clogging factor.
SW31				An operation and maintenance manual is provided for all facilities associated with the stormwater system.
SW32				A maintenance agreement is signed and included.
SW33				A maintenance access road is provided when the stormwater facility is located eight feet or more from an all-weather, drivable surface.